

Calendar No. 165

103D CONGRESS
1ST SESSION

S. 4

[Report No. 103-113]

A BILL

To promote the industrial competitiveness and economic growth of the United States by strengthening and expanding the civilian technology programs of the Department of Commerce, amending the Stevenson-Wylder Technology Innovation Act of 1980 to enhance the development and nationwide deployment of manufacturing technologies, and authorizing appropriations for the Technology Administration of the Department of Commerce, including the National Institute of Standards and Technology, and for other purposes.

JULY 28 (legislative day, JUNE 30), 1993
Reported with an amendment

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IN THE SENATE OF THE UNITED STATES

JANUARY 21 (legislative day, JANUARY 5), 1993

Mr. HOLLINGS (for himself, Mr. MITCHELL, Mr. ROCKEFELLER, Mr. BINGAMAN, Mr. LIEBERMAN, Mr. RIEGLE, Mr. ROBB, Mr. WOFFORD, Mr. KERRY, Ms. MOSELEY-BRAUN, Mr. LEAHY, Mr. LEVIN, Mr. PELL, Mr. BRYAN, Mr. BREAU, Mr. CONRAD, Mr. BURNS, Mr. SARBANES, Mr. BAUCUS, Mr. KERREY, and Mr. EXON) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

JULY 28 (legislative day, JUNE 30), 1993

Reported by Mr. HOLLINGS, with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]

A BILL

To promote the industrial competitiveness and economic growth of the United States by strengthening and expanding the civilian technology programs of the Depart-

ment of Commerce, amending the Stevenson-Wydler Technology Innovation Act of 1980 to enhance the development and nationwide deployment of manufacturing technologies, and authorizing appropriations for the Technology Administration of the Department of Commerce, including the National Institute of Standards and Technology, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
 2 *tives of the United States of America in Congress assembled,*

3 **TITLE I—GENERAL PROVISIONS**

4 **SEC. 101. SHORT TITLE AND TABLE OF CONTENTS.**

5 (a) ~~SHORT TITLE.~~—This Act may be cited as the
 6 ~~“National Competitiveness Act of 1993”.~~

7 (b) ~~TABLE OF CONTENTS.~~—

TITLE I—GENERAL PROVISIONS

Sec. 101. Short title; table of contents.
 Sec. 102. Findings.
 Sec. 103. Purposes.
 Sec. 104. Definitions.

TITLE II—MANUFACTURING

Sec. 201. Short title.

Subtitle A—Manufacturing Technology and Extension

See 211. Findings and purpose.
 See 212. Manufacturing technology and extension amendments to the Stevenson-Wydler Act.
 See 213. Miscellaneous and conforming amendments.
 See 214. Manufacturing Technology Centers.
 See 215. State Technology Extension Program.
 See 216. American workforce quality partnerships.
 See 217. Report on options for accelerating the adoption of new manufacturing equipment.

Subtitle B—National Science Foundation Manufacturing Program

See 221. National Science Foundation manufacturing activities.

TITLE III—CRITICAL TECHNOLOGIES

See 301. Findings.

Subtitle A—Advanced Technology Program and Related

- See 311. Development of plan for the Advanced Technology Program.
- See 312. Advanced Technology Program support of large-scale joint ventures.
- See 313. Technical amendments.
- See 314. Technology monitoring and competitive assessment.
- See 315. Commerce Technology Advisory Board.
- See 316. Study of semiconductor lithography technologies.

Subtitle B—Technology Financing Pilot Programs

- See 321. Findings and purpose.
- See 322. Civilian Technology Loan Program.
- See 323. Assistance to critical technology investment companies.
- See 324. Assistance to State technology development programs.

TITLE IV—ADDITIONAL COMMERCE DEPARTMENT PROVISIONS

- Sec. 401. International standardization.
- Sec. 402. Malcolm Baldrige Award amendments.
- Sec. 403. Cooperative research and development agreements.
- Sec. 404. Clearinghouse on State and Local Initiatives.
- Sec. 405. Use of domestic products.
- Sec. 406. Severability.
- Sec. 407. Wind engineering research program.

TITLE V—AUTHORIZATIONS OF APPROPRIATIONS

- Sec. 501. Technology Administration.
- Sec. 502. National Institute of Standards and Technology.
- Sec. 503. Additional activities of the Technology Administration.
- Sec. 504. National Science Foundation.
- Sec. 505. Availability of appropriations.

TITLE VI—INFORMATION INFRASTRUCTURE AND TECHNOLOGY

- Sec. 601. Short title.
- Sec. 602. Findings and purpose.
- Sec. 603. Information Infrastructure Development Program.
- Sec. 604. Applications for education.
- Sec. 605. Applications for manufacturing.
- Sec. 606. Applications for health care.
- Sec. 607. Applications for libraries.
- Sec. 608. Access to scientific and technical information.

1 **SEC. 102. FINDINGS.**

2 Congress finds and declares the following:

- 3 (1) In an increasingly competitive world econ-
- 4 omy, the companies and nations which lead in the
- 5 rapid development, commercialization, and applica-
- 6 tion of new technologies, and in the low-priced, high-

1 quality manufacture of products based on those
2 technologies, will lead in economic growth, employ-
3 ment, and high living standards.

4 (2) While the United States remains the world
5 leader in science and invention, it has not done as
6 well as it should in commercializing and manufactur-
7 ing new inventions. This lag and the unprecedented
8 competitive challenge that the Nation has faced from
9 abroad have contributed to a drop in real wages and
10 living standards.

11 (3) While the private sector must take the lead
12 in the development, application, and manufacture of
13 new technologies, the Federal Government should—

14 (A) assist industry in the development of
15 high-risk, long-term precommercial technologies
16 which promise large economic benefits for the
17 Nation;

18 (B) support industry-led efforts to develop
19 and refine advanced manufacturing tech-
20 nologies;

21 (C) work with States, the private sector,
22 and worker organizations to help small- and
23 medium-sized manufacturers throughout the
24 Nation to adopt best current manufacturing
25 technologies and practices, to improve worker

1 skills, and prepare, as appropriate, to adopt the
2 advanced computer-controlled manufacturing
3 technologies of the 21st century; and

4 (D) cooperate with industry and academia
5 to help create an advanced information infra-
6 structure for the United States.

7 (4) In working with industry to promote the
8 technological leadership and economic growth of the
9 United States, the Federal Government also has a
10 responsibility to consult with business leaders on in-
11 dustry's long-term technological needs, to monitor
12 technological trends and technology targeting efforts
13 in other nations, and generally to ensure that Fed-
14 eral technology programs help United States to re-
15 main competitive and create good domestic jobs.

16 (5) The Department of Commerce, and particu-
17 larly its Technology Administration and National In-
18 stitute of Standards and Technology, is and should
19 remain the civilian government agency which helps
20 commercial industry to speed the development and
21 commercialization of new technologies, improve man-
22 ufacturing, and ensure a growing and healthy na-
23 tional industrial base and good manufacturing jobs.
24 To promote the long-term economic growth of the

1 Nation, these Department of Commerce programs
2 should be strengthened and expanded.

3 **SEC. 103. PURPOSES.**

4 The purposes of this Act are to—

5 (1) strengthen and expand the ability of Fed-
6 eral technology programs, particularly those of the
7 Department of Commerce, to support industry-led
8 efforts to improve the technological capabilities,
9 manufacturing performance, information infrastruc-
10 ture, and employment opportunities of the United
11 States;

12 (2) promote and facilitate, particularly through
13 the Advanced Technology Program of the Depart-
14 ment of Commerce the creation, development, and
15 adoption of technologies that will contribute signifi-
16 cantly to United States economic competitiveness,
17 employment, and prosperity;

18 (3) develop a nationwide network of sources of
19 technological advice for manufacturers, particularly
20 small- and medium-sized firms, and to provide high
21 quality, current information to that network;

22 (4) encourage the development and rapid appli-
23 cation of advanced manufacturing technologies and
24 processes;

1 (5) create pilot programs to stimulate and sup-
2 plement the flow of capital to business concerns en-
3 gaged principally in development or utilization of
4 critical civilian and other advanced technologies;

5 (6) ensure the widest possible application of
6 high-performance computing and high-speed
7 networking and to aid United States industry to de-
8 velop an advanced national information infrastruc-
9 ture; and

10 (7) enhance and expand the core programs of
11 the National Institute of Standards and Technology.

12 **SEC. 104. DEFINITIONS.**

13 For purposes of this Act—

14 (1) the term “advanced manufacturing tech-
15 nology” includes—

16 (A) numerically-controlled machine tools,
17 robots, automated process control equipment,
18 computerized flexible manufacturing systems,
19 associated computer software, and other tech-
20 nology for improving manufacturing and indus-
21 trial production which advance the state-of-the-
22 art; and

23 (B) novel techniques and processes de-
24 signed to improve manufacturing quality, pro-
25 ductivity, and practice, and to promote sustain-

1 able development, including engineering design,
 2 quality assurance, concurrent engineering, con-
 3 tinuous process production technology, energy
 4 efficiency, waste minimization, design for
 5 recyclability or parts reuse, inventory manage-
 6 ment, upgraded worker skills, and communica-
 7 tions with customers and suppliers;

8 (2) the term “Director” means the Director of
 9 the Institute;

10 (3) the term “Institute” means the National In-
 11 stitute of Standards and Technology;

12 (4) the term “modern technology” means the
 13 best available proven technology, techniques, and
 14 processes appropriate to enhancing the productivity
 15 of manufacturers;

16 (5) the term “Secretary” means the Secretary
 17 of Commerce; and

18 (6) the term “Under Secretary” means the
 19 Under Secretary of Commerce for Technology.

20 **TITLE II—MANUFACTURING**

21 **SEC. 201. SHORT TITLE.**

22 This title may be cited as the “Manufacturing Tech-
 23 nology and Extension Act of 1993”.

Subtitle A—Manufacturing Technology and Extension

SEC. 211. FINDINGS AND PURPOSE.

(a) FINDINGS.—Congress finds and declares the following:

(1) United States manufacturers, especially small businesses, require the adoption and implementation of both modern (that, appropriate and currently available) technologies and advanced manufacturing and process technologies to meet the challenge of foreign competition.

(2) The development and deployment of modern and advanced manufacturing technologies are vital to the economic growth, environmental sustainability, standard of living, competitiveness in world markets, and national security of the United States.

(3) New developments in flexible, computer-integrated manufacturing, electronic manufacturing communications networks, and other new technologies make possible dramatic improvements across all industrial sectors in productivity, quality, and the speed with which manufacturers can respond to changing market opportunities.

(4) The Department of Commerce's Technology Administration can continue to play an important

1 role in assisting United States industry to develop,
2 test, and deploy modern and advanced manufactur-
3 ing technologies.

4 (b) PURPOSE.—It is the purpose of this subtitle to
5 help ensure the continued leadership of the United States
6 in manufacturing by enhancing the Department of Com-
7 merce’s technology programs to—

8 (1) provide domestic manufacturers, especially
9 small- and medium-sized companies, with ready ac-
10 cess to high quality Federal advice and assistance in
11 the development, deployment, and improvement of
12 modern manufacturing technology, and in solving
13 their specific technology-based problems; and

14 (2) encourage, facilitate, and promote the devel-
15 opment and adoption of advanced manufacturing
16 technologies by the private sector.

17 **SEC. 212. MANUFACTURING TECHNOLOGY AND EXTENSION**
18 **AMENDMENTS TO THE STEVENSON-WYDLER**
19 **ACT.**

20 The Stevenson-Wydler Technology Innovation Act of
21 1980 (15 U.S.C. 3701 et seq.) is amended by adding at
22 the end the following new title:

1 **~~“TITLE III—MANUFACTURING~~**
2 **~~TECHNOLOGY~~**

3 **~~“SEC. 301. STATEMENT OF POLICY.~~**

4 ~~“Congress declares that it is the policy of the United~~
5 ~~States that—~~

6 ~~“(1) Federal agencies, particularly the Depart-~~
7 ~~ment of Commerce, shall work with industry and~~
8 ~~labor to ensure that within 10 years of the date of~~
9 ~~enactment of this Act the United States is second to~~
10 ~~no other nation in the development, deployment, and~~
11 ~~use of advanced manufacturing technology;~~

12 ~~“(2) all the major Federal research and devel-~~
13 ~~opment agencies shall place a high priority on the~~
14 ~~development and deployment of advanced manufac-~~
15 ~~turing technologies, and shall work closely with~~
16 ~~United States industry and with the Nation’s univer-~~
17 ~~sities to develop and test those technologies; and~~

18 ~~“(3) other Federal departments and agencies~~
19 ~~which work with civilian industry and labor shall be~~
20 ~~encouraged, as appropriate and consistent with ap-~~
21 ~~plicable statutes and duties, to work with and~~
22 ~~through the programs of the Department of Com-~~
23 ~~merce.~~

1 ~~“SEC. 302. ROLE OF THE DEPARTMENT OF COMMERCE.~~

2 ~~“(a) IN GENERAL.—The Department of Commerce~~
3 ~~shall, consistent with the policies and purposes of section~~
4 ~~301, work with United States commercial industry and~~
5 ~~labor to—~~

6 ~~“(1) help develop new generic advanced manu-~~
7 ~~facturing technologies, including advanced flexible~~
8 ~~computer-integrated manufacturing systems and~~
9 ~~electronic communications networks; and~~

10 ~~“(2) assist the States and the private sector to~~
11 ~~help United States manufacturers, especially small~~
12 ~~and medium-sized manufacturing enterprises, to~~
13 ~~adopt best current manufacturing technologies and~~
14 ~~practices and, as appropriate, new advanced manu-~~
15 ~~facturing equipment and techniques.~~

16 ~~“(b) TWENTY-FIRST CENTURY MANUFACTURING IN-~~
17 ~~FRASTRUCTURE PROGRAM.—(1) As one important step to~~
18 ~~carry out the responsibilities of the Department of Com-~~
19 ~~merce under subsection (a) of this section, there is estab-~~
20 ~~lished within the Institute a Twenty-First Century Manu-~~
21 ~~facturing Infrastructure Program, which shall include—~~

22 ~~“(A) the Advanced Manufacturing Technology~~
23 ~~Development Program established under section 303~~
24 ~~of this title; and~~

25 ~~“(B) the National Manufacturing Outreach~~
26 ~~Program established under section 304 of this title~~

1 and the associated programs established under sec-
2 tions 25 and 26 of the National Institute of Stand-
3 ards and Technology Act (15 U.S.C. 278k-1).

4 “(2) The Secretary, through the Under Secretary and
5 the Director, may accept the transfer of funds from any
6 other Federal agency and may use those funds to imple-
7 ment the Twenty-First Century Manufacturing Infra-
8 structure Program and support its activities.

9 **“SEC. 303. ADVANCED MANUFACTURING TECHNOLOGY DE-**
10 **VELOPMENT PROGRAM.**

11 “(a) PROGRAM DIRECTION.—The Secretary, through
12 the Under Secretary and the Director, shall establish an
13 Advanced Manufacturing Technology Development Pro-
14 gram which shall include advanced manufacturing systems
15 and networking projects.

16 “(b) PROGRAM GOAL.—The goal of the Advanced
17 Manufacturing Technology Development Program is to
18 create collaborative multiyear technology development pro-
19 grams involving United States industry and, as appro-
20 priate, other Federal agencies, the States, worker organi-
21 zations, universities, and other interested persons, in order
22 to develop, refine, test, and transfer design and manufac-
23 turing technologies and associated applications, including
24 advanced computer integration and electronic networks.

1 “(c) PROGRAM COMPONENTS.—The Advanced Manu-
2 facturing Technology Development Program shall in-
3 clude—

4 “(1) the advanced manufacturing research and
5 development activities at the Institute; and

6 “(2) one or more technology development
7 testbeds within the United States, selected in ac-
8 cordance with procedures, including cost sharing, es-
9 tablished for the Advanced Technology Program
10 under section 28 of the National Institute of Stand-
11 ards and Technology Act (15 U.S.C. 278n), whose
12 purpose shall be to develop, refine, test, and transfer
13 advanced manufacturing and networking tech-
14 nologies and associated applications through a direct
15 manufacturing process.

16 “(d) ACTIVITIES.—The Advanced Manufacturing
17 Technology Development Program, under the coordination
18 of the Secretary, through the Director, shall—

19 “(1) test and, as appropriate, develop the
20 equipment, computer software, and systems integra-
21 tion necessary for the successful operation within the
22 United States of advanced design and manufactur-
23 ing systems and associated electronic networks;

24 “(2) establish at the Institute and the tech-
25 nology development testbed or testbeds—

1 “(A) prototype advanced computer-inte-
2 grated manufacturing systems; and

3 “(B) prototype electronic networks linking
4 manufacturing systems;

5 “(3) assist industry to develop, and implement
6 voluntary consensus standards relevant to advanced
7 computer-integrated manufacturing operations, in-
8 cluding standards for networks, electronic data
9 interchange, and digital product data specifications;

10 “(4) help to make high-performance computing
11 and networking technologies an integral part of de-
12 sign and production processes where appropriate;

13 “(5) conduct research to identify and overcome
14 technical barriers to the successful and cost-effective
15 operation of advanced manufacturing systems and
16 networks;

17 “(6) facilitate industry efforts to develop and
18 test new applications for manufacturing systems and
19 networks;

20 “(7) involve in the Advanced Manufacturing
21 Technology Development Program, to the maximum
22 extent practicable, both those United States compa-
23 nies which make manufacturing and computer
24 equipment and a broad range of company personnel
25 from those companies which buy the equipment;

1 ~~“(8) identify training needs, as appropriate, for~~
2 ~~company managers, engineers, and employees in the~~
3 ~~operation and applications of advanced manufactur-~~
4 ~~ing technologies and networks, with a particular em-~~
5 ~~phasis on training for production workers in the ef-~~
6 ~~fective use of new technologies;~~

7 ~~“(9) work with private industry, universities,~~
8 ~~and other interested parties to develop standards for~~
9 ~~the use of advanced computer-based training sys-~~
10 ~~tems, including multi-media and interactive learning~~
11 ~~technologies;~~

12 ~~“(10) involve small- and medium-sized manu-~~
13 ~~facturers in its activities; and~~

14 ~~“(11) exchange information and personnel, as~~
15 ~~appropriate, between the technology development~~
16 ~~testbeds and the electronic network created under~~
17 ~~section 303.~~

18 ~~“(e) TESTBED AWARDS.—(1) In selecting applicants~~
19 ~~to receive awards under subsection (c)(2) of this section,~~
20 ~~the Secretary shall give particular consideration to appli-~~
21 ~~cants that have existing computer expertise in the man-~~
22 ~~agement of business, product, and process information~~
23 ~~such as digital data product and process technologies and~~
24 ~~customer-supplier information systems, and the ability to~~
25 ~~diffuse such expertise into industry, and that, in the case~~

1 of joint research and development ventures, include both
 2 suppliers and users of advanced manufacturing equip-
 3 ment.

4 “(2) An industry-led joint research and development
 5 venture applying for an award under subsection (c)(2) of
 6 this section may include one or more State research orga-
 7 nizations, universities, independent research organizations
 8 or Regional Centers for the Transfer of Manufacturing
 9 Technology (as created under section 25 of the National
 10 Institute of Standards and Technology Act) and other or-
 11 ganizations as the Secretary considers appropriate.

12 “(f) ADVICE AND ASSISTANCE.—(1) Within 6 months
 13 after the date of enactment of this title, and before any
 14 request for proposals is issued, the Secretary shall hold
 15 one or more workshops to solicit advice from United
 16 States industry and from other Federal agencies, particu-
 17 larly the Department of Defense, regarding the specific
 18 missions and activities of the testbeds.

19 “(2) The Secretary shall, to the greatest extent pos-
 20 sible, coordinate activities under this section with activities
 21 of other Federal agencies and initiatives relating to Com-
 22 puter-Aided Acquisition and Logistics Support, electronic
 23 data interchange, flexible computer-integrated manufac-
 24 turing, and enterprise integration..

1 “(3) The Secretary may request and accept funds,
2 facilities, equipment, or personnel from other Federal
3 agencies in order to carry out responsibilities under this
4 section.

5 “(g) APPLICATION OF ANTITRUST LAWS.—Nothing
6 in this section shall be construed to create any immunity
7 to any civil or criminal action under any Federal or State
8 antitrust law, or to alter or restrict in any matter the ap-
9 plicability of any Federal or State antitrust law.

10 ~~“SEC. 304. NATIONAL MANUFACTURING OUTREACH PRO-~~
11 ~~GRAM.~~

12 “(a) ESTABLISHMENT AND PURPOSE.—There is
13 hereby established a National Manufacturing Outreach
14 Program (hereafter in this section referred to as the ‘Out-
15 reach Program’). The Secretary, acting through the Under
16 Secretary and the Director, shall implement and coordi-
17 nate the Outreach Program in accordance with an initial
18 plan to be prepared and submitted to Congress within 6
19 months after the date of enactment of this title and a 5-
20 year plan for the Outreach Program to be submitted to
21 the Congress within a year after the date of enactment
22 of this title and to be updated annually. The purpose of
23 the Outreach Program is to link and strengthen the Na-
24 tion’s manufacturing extension centers and activities in
25 order to assist United States manufacturers, especially

1 small and medium-sized firms, to expand and accelerate
2 the use of modern manufacturing practices, and to accel-
3 erate the development and use of advanced manufacturing
4 technology.

5 “(b) COMPONENTS.—The Outreach Program shall be
6 a partnership of the Department of Commerce, the States,
7 the private sector, and, as appropriate, other Federal
8 agencies to provide a national system of manufacturing
9 extension centers and technical services to United States
10 companies, particularly small and medium-sized manufac-
11 turers. The Outreach Program shall include the following
12 components—

13 “(1) Manufacturing Outreach Centers, as pro-
14 vided for under subsection (c) of this section;

15 “(2) Regional Centers for the Transfer of Man-
16 ufacturing Technology, as established under section
17 25 of the National Institute of Standards and Tech-
18 nology Act, and the State Technology Extension
19 Program, as established under section 26 of the Na-
20 tional Institute of Standards and Technology Act;

21 “(3) an organization, coordinated and funded
22 by the Institute, which links and supports Manufac-
23 turing Outreach Centers and Regional Centers for
24 the Transfer of Manufacturing Technology, and
25 which operates the Technology Extension Network

1 and Clearinghouse established under subsection (d)
2 of this section; and

3 “(4) such technology and manufacturing exten-
4 sion centers supported by other Federal departments
5 and agencies as the Secretary may deem appropriate
6 for inclusion in the Outreach Network.

7 “(c) MANUFACTURING OUTREACH CENTERS.—(1)
8 Government and private sector organizations, actively en-
9 gaged in technology or manufacturing extension activities,
10 may apply to the Secretary to be designated as Manufac-
11 turing Outreach Centers. Eligible organizations may in-
12 clude Federal, State, and local government agencies, their
13 extension programs, and their laboratories; small business
14 development centers; and appropriate programs run by
15 professional societies, worker organizations, industrial or-
16 ganizations, for-profit or nonprofit organizations, univer-
17 sities, community colleges, and technical schools and col-
18 leges, including, where appropriate, vendor-supported
19 demonstrations of production applications.

20 “(2) The Secretary shall establish terms and condi-
21 tions of participation and may provide financial assistance,
22 on a cost-shared basis and through competitive, merit-
23 based review processes, to nonprofit or government par-
24 ticipants throughout the United States to enable them
25 to—

1 “(A) join the Outreach Program and dissemi-
2 nate its technical and information services to United
3 States manufacturing firms, particularly small and
4 medium-sized firms; and

5 “(B) strengthen their efforts to help small and
6 medium-sized United States manufacturers to ex-
7 pand and accelerate the use of modern and advanced
8 manufacturing practices.

9 “(3) Each Manufacturing Outreach Center shall have
10 the option of affiliating or not affiliating with one or more
11 Regional Centers for the Transfer of Manufacturing Tech-
12 nology. If such a Manufacturing Outreach Center chooses
13 to make such an affiliation, the Secretary, through the Di-
14 rector, shall take such steps as appropriate to ensure a
15 productive working partnership between such center and
16 the Regional Center or Centers with which it affiliates.

17 “(d) TECHNOLOGY EXTENSION COMMUNICATIONS
18 NETWORK.—The Department of Commerce shall provide
19 for an instantaneous, interactive communications network
20 to serve the Outreach Program, to facilitate interaction
21 among Manufacturing Outreach Centers, Regional Cen-
22 ters for the Transfer of Manufacturing Technology, and
23 Federal agencies and to permit the collection and dissemi-
24 nation in electronic form, in a timely and accurate man-
25 ner, of information described in subsection (c). Such com-

1 munications infrastructure shall, wherever practicable,
2 make use of existing computer networks, data bases, and
3 electronic bulletin boards. Communications infrastructure
4 arrangements, including user fees and appropriate elec-
5 tronic access for public and private information suppliers
6 and users shall be addressed in the 5-year plan prepared
7 under subsection (a) of this section.

8 “(e) CLEARINGHOUSE.—(1) The Secretary shall de-
9 velop a clearinghouse system, using the National Institute
10 of Standards and Technology, the National Technical In-
11 formation Service, and private sector information provid-
12 ers and carriers where appropriate, to—

13 “(A) identify expertise and acquire information,
14 appropriate to the purpose of the Outreach Program
15 stated in subsection (a), from all available Federal
16 sources, and where appropriate from other sources,
17 providing assistance where necessary in making such
18 information electronically available and compatible
19 with the electronic network;

20 “(B) ensure ready access by United States
21 manufacturers and other interested private sector
22 parties to the most recent relevant available such in-
23 formation and expertise; and

1 ~~“(C) to the extent practicable, inform such~~
2 ~~manufacturers of the availability of such informa-~~
3 ~~tion.~~

4 ~~“(2) The clearinghouse shall include information~~
5 ~~available electronically on—~~

6 ~~“(A) activities of Manufacturing Outreach Cen-~~
7 ~~ters, Regional Centers for the Transfer of Manufac-~~
8 ~~turing Technology, the State Technology Extension~~
9 ~~Program, and the users of the electronic network;~~

10 ~~“(B) domestic and international standards from~~
11 ~~the Institute and private sector organizations and~~
12 ~~other export promotion information, including con-~~
13 ~~formity assessment requirements and procedures;~~

14 ~~“(C) the Malcolm Baldrige Quality program,~~
15 ~~and quality principles and standards;~~

16 ~~“(D) manufacturing processes minimizing waste~~
17 ~~and negative environmental impact;~~

18 ~~“(E) federally-funded technology development~~
19 ~~and transfer programs;~~

20 ~~“(F) responsibilities assigned to the Clearing-~~
21 ~~house for State and Local Initiatives on Productiv-~~
22 ~~ity, Technology, and Innovation under section 102 of~~
23 ~~this Act;~~

24 ~~“(G) how to access data bases and services; and~~

1 “(H) other subjects relevant to the ability of
2 companies to manufacture and sell competitive prod-
3 ucts throughout the world.

4 “(f) PRINCIPLES.—In carrying out this section, the
5 Department of Commerce shall take into consideration the
6 following principles:

7 “(1) The Outreach Program and the electronic
8 network shall be established and operated through
9 cooperation and co-funding among Federal, State,
10 and local governments, other public and private con-
11 tributors, and end users.

12 “(2) The Outreach Program and the electronic
13 network shall utilize and leverage, to the extent
14 practicable, existing organizations, data bases, elec-
15 tronic networks, facilities, and capabilities, and shall
16 be designed to complement rather than supplant
17 State and local programs.

18 “(3) The Outreach Program should, to the ex-
19 tent practicable, involve key stakeholders at all levels
20 in the planning and governance of modernization
21 strategies; concentrate on assisting local clusters of
22 firms; promote collaborative learning and cooperative
23 action among small and large manufacturers; link
24 industrial modernization programs tightly to existing
25 and future Federal training initiatives, including

1 those for youth apprenticeship programs; encourage
2 small firms to seek modernization services by work-
3 ing with major manufacturers to strengthen and co-
4 ordinate their supplier assessment, certification, and
5 development programs; identify and honor best prac-
6 tices by firms and the programs that support them;
7 provide funding based on performance and ensure
8 rigorous evaluation of extension services; as appro-
9 priate, coordinate Federal programs that support
10 manufacturing modernization; and work with Fed-
11 eral, State, and private organizations so that Out-
12 reach Centers and Regional Centers for the Transfer
13 of Manufacturing Technology can provide referrals
14 to other important business services, such as assist-
15 ance with financing, training, and exporting.

16 “(4) The Outreach Program and the electronic
17 network and communications infrastructure provided
18 for under subsection (d), shall be subject to all ap-
19 plicable provisions of law for the protection of trade
20 secrets and business confidential information.

21 “(5) Local or regional needs should determine
22 the management structure and staffing of the Manu-
23 facturing Outreach Centers. The Outreach Program
24 shall strive for geographical balance with the ulti-

1 mate goal of access for all United States manufac-
2 turers.

3 ~~“(6) Manufacturing Outreach Centers should~~
4 have the capability to deliver outreach services di-
5 rectly to manufacturers; actively work with, rather
6 than supplant, the private sector; and to the extent
7 practicable, maximize the exposure of manufacturers
8 to demonstrations of modern technologies in use.

9 ~~“(7) Manufacturing Outreach Centers shall~~
10 focus, where possible, on the development and de-
11 ployment of flexible manufacturing practices applica-
12 ble to both defense and commercial applications.

13 ~~“(8) The Department of Commerce shall de-~~
14 velop mechanisms for—

15 ~~“(A) soliciting the perspectives of manufac-~~
16 turers using the services of the Manufacturing
17 Outreach Centers and Regional Centers for the
18 Transfer of Manufacturing Technology; and

19 ~~“(B) evaluating the effectiveness of the~~
20 Manufacturing Outreach Centers.

21 ~~“SEC. 305. INDUSTRY-LED MANUFACTURING ADVISORY~~
22 ~~COMMITTEE.~~

23 ~~“(a) ESTABLISHMENT.—The Director of the Office~~
24 of Science and Technology Policy, after consultation with
25 the Secretary of Commerce and other appropriate Federal

1 officials, shall establish within that office a Manufacturing
2 Advisory Committee (hereafter in this section referred to
3 as the ‘Committee’), led by industry officials, to provide
4 advice and, as appropriate, guidance to Federal manufac-
5 turing programs.

6 “(b) FUNCTIONS.—The Committee shall—

7 “(1) collect and analyze information on the
8 range of factors which determine the success of
9 United States-based manufacturing industries, and
10 particularly factors regarding the development and
11 deployment of advanced manufacturing technologies
12 and the application of best manufacturing practices;

13 “(2) identify areas where appropriate coopera-
14 tion between the Federal Government and the pri-
15 vate sector, including Government support for indus-
16 try-led joint research and development ventures and
17 for manufacturing extension activities, would en-
18 hance United States industrial competitiveness, and
19 provide advice and guidance for such cooperative ef-
20 forts;

21 “(3) provide guidance on what Federal policies
22 and practices are necessary to strengthen United
23 States-based manufacturing, particularly Federal
24 policies and practices regarding research budgets,

1 interagency coordination and initiatives, technology
2 transfer, regulation, and procurement; and

3 “(4) generally develop recommendations for
4 guiding Federal agency and interagency activities re-
5 lated to United States-based manufacturing.

6 “(c) MEMBERSHIP AND PROCEDURES.—(1)(A) The
7 Committee shall be composed of 13 members, 7 of whom
8 shall constitute a quorum.

9 “(B) The Director of the Office of Science and Tech-
10 nology Policy, the Secretary, the Secretary of Defense, and
11 the Director of the National Science Foundation, or their
12 designees, shall serve as members of the Committee.

13 “(C) The President, acting through the Director of
14 the Office of Science and Technology Policy, shall within
15 120 days of the date of enactment of this Act appoint 9
16 additional members from the private manufacturing in-
17 dustry, worker organizations, State technology agencies,
18 and academia. At least 1 such member shall be from small
19 business.

20 “(2) The Director of the Office of Science and Tech-
21 nology Policy or the Director’s designee shall chair the
22 Board.

23 “(3) The chairman shall call the first meeting of the
24 Board within 30 days after the appointment of members
25 is completed.

1 “(4) The Board may use such personnel detailed
2 from Federal agencies as may be necessary to enable it
3 to perform its functions.

4 “(5) Members of the Board, other than full-time em-
5 ployees of the Federal Government, while attending meet-
6 ings of the Board or otherwise performing duties of the
7 Board while away from their homes or regular places of
8 business, shall be allowed travel expenses in accordance
9 with subchapter I of chapter 57 of title 5, United States
10 Code.

11 “(6) The Board shall submit a report of its activities
12 once every year after its establishment to the President,
13 the Committee on Science, Space, and Technology of the
14 House of Representatives, and the Committee on Com-
15 merce, Science, and Transportation of the Senate.

16 “(d) AUTHORIZATION OF APPROPRIATIONS.—There
17 are authorized to be appropriated to carry out this section
18 such sums as may be necessary for the fiscal years 1994
19 and 1995.”

20 **SEC. 213. MISCELLANEOUS AND CONFORMING AMEND-**
21 **MENTS.**

(a) DEFINITIONS.—Section 4 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3703) is amended by adding at the end the following new paragraphs:

1 “(14) ‘Director’ means the Director of the Na-
2 tional Institute of Standards and Technology.

3 “(15) ‘Institute’ means the National Institute
4 of Standards and Technology.

5 “(16) ‘Assistant Secretary’ means the Assistant
6 Secretary of Commerce for Technology Policy.

7 “(17) ‘Advanced manufacturing technology’ in-
8 cludes—

9 “(A) numerically-controlled machine tools,
10 robots, automated process control equipment,
11 computerized flexible manufacturing systems,
12 associated computer software, and other tech-
13 nology for improving manufacturing and indus-
14 trial production which advance the state-of-the-
15 art; and

16 “(B) novel techniques and processes designed to
17 improve manufacturing quality, productivity, and
18 practices, and to promote sustainable development,
19 including engineering design, quality assurance, con-
20 current engineering, continuous process production
21 technology, energy efficiency, waste minimization,
22 design for recyclability or parts reuse, inventory
23 management, upgraded worker skills, and commu-
24 nications with customers and suppliers.

1 “(18) ‘Modern technology’ means the best avail-
 2 able proven technology, techniques, and processes
 3 appropriate to enhancing the productivity of manu-
 4 facturers.”.

5 (b) REDESIGNATIONS.—The Stevenson-Wydler Tech-
 6 nology Innovation Act of 1980 (15 U.S.C. 3701 et seq.)
 7 is amended—

8 (1) by inserting immediately after section 4 the
 9 following new title heading:

10 **“TITLE I—DEPARTMENT OF COMMERCE**
 11 **AND RELATED PROGRAMS”;**

12 (2) by redesignating sections 5 through 10 as
 13 sections 101 through 106, respectively;

14 (3) by striking section 21;

15 (4) by redesignating sections 16 through 20,
 16 and 22, as sections 107 through 112, respectively;

17 (5) by inserting immediately after section 112
 18 (as redesignated by paragraph (4) of this sub-
 19 section) the following new title heading:

20 **“TITLE II—FEDERAL TECHNOLOGY**
 21 **TRANSFER”;**

22 (6) by redesignating sections 11 through 15 as
 23 sections 201 through 205, respectively;

24 (7) by redesignating section 23 as section 206;

25 (8) in section 4—

1 (A) by striking “section 5” each place it
2 appears and inserting in lieu thereof “section
3 101”;

4 (B) in paragraphs (4) and (6), by striking
5 “section 6” and “section 8” each place they ap-
6 pear and inserting in lieu thereof “section 102”
7 and “section 104”, respectively; and

8 (C) in paragraph (13), by striking “section
9 6” and inserting in lieu thereof “section 102”;

10 (9) in section 105 (as redesignated by para-
11 graph (2) of this subsection) by striking “section 6”
12 each place it appears and inserting in lieu thereof
13 “section 102”;

14 (10) in section 106(d)—(as redesignated by
15 paragraph (2) of this subsection) by striking “7, 9,
16 11, 15, 17, or 20” and inserting in lieu thereof
17 “103, 105, 108, 111, 201, or 205”;

18 (11) in section 202(b) (as redesignated by para-
19 graph (6) of this subsection) by striking “section
20 14” and inserting in lieu thereof “section 204”;

21 (12) in section 204(a)(1) (as redesignated by
22 paragraph (6) of this subsection) by striking “sec-
23 tion 12” and inserting in lieu thereof “section 202”;

24 (13) in section 112 (as redesignated by para-
25 graph (4) of this subsection) by striking “sections

1 ~~11, 12, and 13~~” and inserting in lieu thereof “sec-
2 tions ~~201, 202, and 203~~”;

3 ~~(14)~~ in section 206 (as redesignated by para-
4 graph ~~(7)~~ of this subsection)—

5 (A) by striking “section 11(b)” in subsection
6 ~~(a)(2)~~ and inserting in lieu thereof “section 201(b)”;
7 and

8 (B) by striking “section 6(d)” in subsection (b)
9 and inserting in lieu thereof “section 102(d)”;

10 ~~(15)~~ by adding at the end of section 201 (as re-
11 designated by paragraph ~~(6)~~ of this subsection) the
12 following new subsection:

13 “~~(j)~~ **ADDITIONAL TECHNOLOGY TRANSFER MECHA-**
14 **NISMS.**—In addition to the technology transfer mecha-
15 nisms set forth in this section and section 202 of this Act,
16 the heads of Federal departments and agencies also may
17 transfer technologies through the technology transfer, ex-
18 tension, and deployment programs of the Department of
19 Commerce and the Department of Defense.”.

20 **SEC. 214. MANUFACTURING TECHNOLOGY CENTERS.**

21 Section 25 of the National Institute of Standards and
22 Technology Act (15 U.S.C. 278k), is amended—

23 (1) by amending the section heading to read as
24 follows: “**MANUFACTURING TECHNOLOGY CEN-**
25 **TERS**”;

1 (2) in subsection (c)(5), by striking “which are
2 designed” and all that follows through “operation of
3 a Center” and inserting in lieu thereof “to a maxi-
4 mum of one-third Federal funding. Each Center
5 which receives financial assistance under this section
6 shall be evaluated during its sixth year of operation,
7 and at such subsequent times as the Secretary con-
8 siders appropriate, by an evaluation panel appointed
9 by the Secretary in the same manner as was the
10 evaluation panel previously appointed. The Secretary
11 shall not provide funding for additional years of the
12 Center’s operation unless the evaluation is positive
13 and the Secretary finds that continuation of funding
14 furtheres the goals of the Department. Such addi-
15 tional Federal funding shall not exceed one-third of
16 the cost of the Center’s operations”;

17 (3) by striking subsection (d); and

18 (4) by adding at the end the following new sub-
19 sections:

20 “(d) If a Center receives a positive evaluation during
21 its third year of operation, the Director may, any time
22 after that evaluation, contract with the Center to provide
23 additional technology extension or transfer services above
24 and beyond the baseline activities of the Center. Such ad-

ditional services may include, but are not necessarily limited to, the development and operation of the following:

“(1) Services focused on the testing, development, and application of manufacturing and process technologies within specific technical fields such as advanced materials or electronics fabrication for the purpose of assisting United States companies, both large and small and both within the Center’s original service region and in other regions, to improve manufacturing, product design, workforce training, and production in those specific technical fields.

“(2) Industrial service facilities which provide tools to help companies with the low-cost, low-volume, rapid prototyping of a range of new products and the refinement of the manufacturing and process technologies necessary to make these products.

“(3) Programs to assist small and medium-sized manufacturers and their employees in the Center’s region to learn and apply the technologies, techniques, and processes associated with systems management technology, electric commerce, or improving manufacturing productivity.

“(4) Industry-lead demonstration programs that explore the value of innovative nonprofit manufacturing technology consortia to provide ongoing re-

1 search, technology transfer, and worker training as-
 2 sistance for industrial members. An award under
 3 this paragraph shall be for no more than \$500,000
 4 per year, and shall be subject to renewal after a 1-
 5 year demonstration period.

6 **SEC. 215. STATE TECHNOLOGY EXTENSION PROGRAM.**

7 (a) Section 26(a) of the National Institute of Stand-
 8 ards and Technology Act (15 U.S.C. 2781(a)), is amend-
 9 ed—

10 (1) by inserting immediately after “(a)” the fol-
 11 lowing new sentence: “There is established within
 12 the Institute a State Technology Extension Pro-
 13 gram.”; and

14 (2) by inserting “through that Program” imme-
 15 diately after “technical assistance”.

16 (b) Section 26 of the National Institute of Standards
 17 and Technology Act (15 U.S.C. 2781) is amended by add-
 18 ing at the end the following new subsection:

19 “(c) In addition to the general authorities listed in
 20 subsection (b) of this section, the State Technology Exten-
 21 sion Program also shall, through merit-based competitive
 22 review processes and as authorizations and appropriations
 23 permit—

24 “(1) make awards to States and conduct work-
 25 shops, pursuant to section 5121(b) of the Omnibus

1 Trade and Competitiveness Act of 1988, in order to
2 help States improve their planning and coordination
3 of technology extension activities;

4 “(2) assist States, particularly States which his-
5 torically have had no manufacturing or technology
6 extension programs or only small programs, to plan,
7 develop, and coordinate such programs and to help
8 bring those State programs to a level of performance
9 where they can apply successfully for awards to es-
10 tablish Manufacturing Outreach Centers, Regional
11 Centers for the Transfer of Manufacturing Tech-
12 nology, or both;

13 “(3) support industrial modernization dem-
14 onstration projects to help States create networks
15 among small manufacturers for the purpose of facili-
16 tating technical assistance, group services, and im-
17 proved productivity and competitiveness;

18 “(4) support State efforts to develop and test
19 innovative ways to help small and medium-sized
20 manufacturers improve their technical capabilities;

21 “(5) support State efforts designed to help
22 small manufacturers in rural as well as urban areas
23 improve and modernize their technical capabilities,
24 including, as appropriate, interstate efforts to
25 achieve such end;

1 “(6) support State efforts to assist interested
2 small defense manufacturing firms to convert their
3 production to nondefense and dual-use purposes;

4 “(7) support worker technology education pro-
5 grams in the States at institutions such as research
6 universities, community colleges, labor education
7 centers, labor-management committees, and worker
8 organizations in production technologies critical to
9 the Nation’s future, with an emphasis on high-per-
10 formance work systems, the skills necessary to use
11 advanced manufacturing systems well, and best pro-
12 duction practice; and

13 “(8) help States develop programs to train per-
14 sonnel who in turn can provide technical skills to
15 managers and workers of manufacturing firms.”.

16 **SEC. 216. AMERICAN WORKFORCE QUALITY PARTNER-**
17 **SHIPS.**

18 (a) PROGRAM AUTHORIZED.—(1) The Secretary,
19 after consultation with the Secretary of Labor and the
20 Secretary of Education, may make awards to eligible ap-
21 plicants to establish and operate American workforce qual-
22 ity partnerships in accordance with the provisions of this
23 section. The purpose of these partnerships is to provide
24 training to industrial employees, particularly in order to
25 enable them to utilize best current manufacturing tech-

1 nologies and practices, including total quality management
2 techniques.

3 ~~(2) An American workforce quality partnership shall~~
4 be a collaboration between—

5 ~~(A) one or more technology-based or manufac-~~
6 ~~turing sector firms, in conjunction with a labor orga-~~
7 ~~nization when appropriate or worker representatives~~
8 ~~or employee representatives; and~~

9 ~~(B) a local community or technical college,~~
10 ~~other appropriate institution of higher education, a~~
11 ~~vocational training institution, a Regional Center for~~
12 ~~the Transfer of Manufacturing Technology, a Manu-~~
13 ~~facturing Outreach Center, or a consortium of such~~
14 ~~institutions,~~

15 to train the employees of the participating industrial firms
16 through both workplace-based and classroom-based train-
17 ing programs.

18 ~~(b) AWARDS.—(1) Awards made under this section~~
19 ~~may be for a period of 5 years. The Federal share of the~~
20 ~~cost of an American workforce quality partnership may~~
21 ~~not exceed 50 percent of the total cost of the partnership.~~
22 ~~The non-Federal share of such costs may be provided in-~~
23 ~~cash or in-kind, fairly valued.~~

24 ~~(2) The Secretary shall make awards under this sec-~~
25 ~~tion on a competitive basis.~~

1 ~~(c) USE OF FUNDS.—(1) An American workplace~~
2 ~~quality partnership may use Federal funds for—~~

3 ~~(A) the direct costs of workplace-based and~~
4 ~~classroom-based training in advanced technical, tech-~~
5 ~~nological, and industrial management, skills, and~~
6 ~~training for the implementation of total quality man-~~
7 ~~agement strategies, or other competitiveness strate-~~
8 ~~gies, contained in the plan;~~

9 ~~(B) the purchase or lease of equipment or other~~
10 ~~materials for the purpose of instruction to aid in~~
11 ~~training;~~

12 ~~(C) the development of in-house curricula or~~
13 ~~coursework or other training-related programs, in-~~
14 ~~cluding the training of teachers and other eligible~~
15 ~~participants to utilize such curricula or coursework;~~
16 ~~and~~

17 ~~(D) reasonable administrative expenses and~~
18 ~~other indirect costs of operating the partnership~~
19 ~~which may not exceed 10 percent of the total cost~~
20 ~~of the program.~~

21 ~~(2) Federal funds may not be used for nontraining~~
22 ~~related costs of adopting new competitive strategies in-~~
23 ~~cluding the replacement of manufacturing equipment,~~
24 ~~product redesign and manufacturing facility construction~~
25 ~~costs, or salary compensation of the partners' employees.~~

1 Grants shall not be made under this section for programs
2 that will impair any existing program, contract, or agree-
3 ment without the written concurrence of the parties to
4 such program, contract, or agreement.

5 (d) ~~ADVISORY BOARDS.~~—Each partnership receiving
6 assistance under this section shall establish an advisory
7 board, which shall—

8 (1) include representatives from participating
9 firms, labor organizations or worker representatives,
10 and the education partners; and

11 (2) advise the partnership on the direction, poli-
12 cies, and activities of the partnership, including
13 training, instruction, and related issues.

14 **SEC. 217. REPORT ON OPTIONS FOR ACCELERATING THE**
15 **ADOPTION OF NEW MANUFACTURING EQUIP-**
16 **MENT.**

17 Within one year of the date of enactment of this Act,
18 the Secretary shall submit to Congress a report on—

19 (1) the degree to which both small and large
20 manufacturing enterprises in the United States have
21 difficulty obtaining financing for the purpose of pur-
22 chasing new equipment and modernizing operations;

23 (2) the policies and practices followed in other
24 industrialized countries to help manufacturing firms
25 obtain financing for modernization;

1 (3) the advantages, disadvantages, and costs of
 2 major options by which the Federal Government
 3 might help stimulate the flow of capital to manufac-
 4 turers and thus accelerate industrial modernization;
 5 including—

6 (A) creation of a Government-sponsored
 7 enterprise to stimulate the flow of capital to
 8 manufacturing;

9 (B) increasing technical advice to banks
 10 and other financial institutions, perhaps
 11 through the National Manufacturing Outreach
 12 Program, in order to increase their ability to
 13 judge whether or not individual manufacturers
 14 have sound modernization plans; and

15 (C) tax incentives.

16 **Subtitle B—National Science Foun-**
 17 **dation Manufacturing Programs**

18 **SEC. 221. NATIONAL SCIENCE FOUNDATION MANUFACTUR-**
 19 **ING ACTIVITIES.**

20 (A) IN GENERAL.—The Director of the National
 21 Science Foundation, after, as appropriate, consultation
 22 with the Secretary, the Under Secretary, and the Director,
 23 shall—

24 (1) work with the United States industry to
 25 identify areas of research in manufacturing tech-

1 nologies and practices that offer the potential to im-
2 prove United States productivity, competitiveness,
3 and employment;

4 (2) support research at United States univer-
5 sities to improve manufacturing technologies and
6 practices; and

7 (3) work with the Technology Administration
8 and the Institute and, as appropriate, other Federal
9 agencies to accelerate the transfer to United States
10 industry of manufacturing research and innovations
11 developed at universities.

12 (b) ENGINEERING RESEARCH CENTERS AND INDUS-
13 TRY/UNIVERSITY COOPERATIVE RESEARCH CENTERS.—

14 The Director of the National Science Foundation shall
15 strengthen and expand the number of Engineering Re-
16 search Centers and strengthen and expand the Industry/
17 University Cooperative Research Centers Program with
18 the goals of increasing the engineering talent base versed
19 in technologies critical to the Nation's future, with empha-
20 sis on advanced manufacturing, and of advancing fun-
21 damental engineering knowledge in these technologies. At
22 least one Engineering Research Center shall have a re-
23 search and education focus on the concerns of traditional
24 manufacturers, including small and medium-sized firms
25 that are trying to modernize their operations. Awards

1 under this subsection shall be made on a competitive,
2 merit review basis. Such awards may include support for
3 acquisition of instrumentation, equipment, and facilities
4 related to research and education activities of the Centers
5 and support for undergraduate students to participate in
6 the activities of the Centers.

7 (c) GRADUATE TRAINEESHIPS.—The Director of the
8 National Science Foundation, in consultation with the
9 Secretary, may establish a program to provide traineeships
10 to graduate students at institutions of higher education
11 within the United States who choose to pursue masters
12 or doctoral degrees in manufacturing engineering.

13 (d) MANUFACTURING MANAGERS IN THE CLASS-
14 ROOM PROGRAM.—The Director of the National Science
15 Foundation, in consultation with the Secretary, may es-
16 tablish a program to provide fellowships, on a cost-shared
17 basis, to individuals from industry with experience in man-
18 ufacturing to serve for 1 or 2 years as instructors in man-
19 ufacturing at 2-year community and technical colleges in
20 the United States. In selecting fellows, the Director of the
21 National Science Foundation shall place special emphasis
22 on supporting individuals who not only have expertise and
23 practicable experience in manufacturing but who also will
24 work to foster cooperation between 2-year colleges and
25 nearby manufacturing firms.

1 ~~(e) PROGRAMS TO TEACH TOTAL QUALITY MANAGE-~~
 2 ~~MENT.—The Director of the National Science Foundation,~~
 3 ~~in consultation with the Secretary, the Under Secretary,~~
 4 ~~and the Director, may establish a program to develop in-~~
 5 ~~novative curricula, courses, and materials for use by insti-~~
 6 ~~tutions of higher education for instruction in total quality~~
 7 ~~management and related management practices, in order~~
 8 ~~to help improve the productivity of United States industry.~~

9 **TITLE III—CRITICAL** 10 **TECHNOLOGIES**

11 **SEC. 301. FINDINGS.**

12 The Congress finds that—

13 (1) the rapid, effective use of advanced tech-
 14 nologies in the design and production of products is
 15 a key determinant of economic competitiveness;

16 (2) investment in the development and adoption
 17 of advanced technology contributes significantly to
 18 long-term economic growth and employment;

19 (3) the governments of our most successful
 20 competitor nations in the global marketplace have
 21 created supportive structures and programs that
 22 have been effective in helping their domestic indus-
 23 tries increase their global market shares;

24 (4) agriculture and aerospace are two examples
 25 of industries that have achieved commercial success

1 with strong support from the United States Govern-
2 ment; and

3 ~~(5) the United States Government must pro-~~
4 ~~mote and facilitate the creation, development, and~~
5 ~~adoption of advanced technologies to ensure long-~~
6 ~~term economic prosperity for the United States.~~

7 **Subtitle A—Advanced Technology**
8 **Program and Related**

9 **SEC. 311. DEVELOPMENT OF PLAN FOR THE ADVANCED**
10 **TECHNOLOGY PROGRAM.**

11 The Secretary, acting through the Under Secretary
12 and the Director, shall, within 6 months after the date
13 of enactment of this Act, submit to the Congress a plan
14 for the expansion of the Advanced Technology Program
15 established under section 28 of the National Institute of
16 Standards and Technology Act (15 U.S.C. 278n), with
17 specific consideration given to—

18 ~~(1) closer coordination and cooperation with the~~
19 ~~Defense Advanced Research Projects Agency and~~
20 ~~other Federal research and development agencies as~~
21 ~~appropriate;~~

22 ~~(2) establishment of staff positions that can be~~
23 ~~filled by industrial or technical experts for a period~~
24 ~~of one to two years;~~

1 (3) broadening of the scope of the program to
2 include as many critical technologies as is appro-
3 priate;

4 (4) changes that may be needed when annual
5 funds available for grants under the Program reach
6 levels of \$200,000,000 and \$500,000,000; and

7 (5) administrative steps necessary for Program
8 support of large-scale industry-led consortia similar
9 to, or possibility eventually including, the Semi-
10 conductor Manufacturing Technology Institute.

11 **SEC. 312. ADVANCED TECHNOLOGY PROGRAM SUPPORT OF**
12 **LARGE-SCALE JOINT VENTURES.**

13 Section 28 of the National Institute of Standards and
14 Technology Act (15 U.S.C. 278n) is amended by adding
15 at the end the following new subsection:

16 “(k) In addition to the general authority under this
17 section to provide financial assistance to joint ventures,
18 the Secretary, through the Director, also may, as per-
19 mitted by levels of authorizations and appropriations, pro-
20 vide financial support to large-scale joint ventures request-
21 ing \$20 million or more a year in Department funds. Any
22 such support shall be subject to the matching funds re-
23 quirements of in subsection (b)(1)(B)(ii) of this section,
24 except that the Secretary may provide assistance to such
25 large-scale joint ventures for up to 7 years. The Secretary

1 may work with industrial groups to develop such proposed
 2 large-scale joint ventures and shall give preference to pro-
 3 posals which represent a broad spectrum of companies for
 4 a given industry and which focus on either speeding the
 5 commercialization of important new technologies or in ac-
 6 celerating the development, testing, and deployment of val-
 7 uable new process technologies. The Secretary and Direc-
 8 tor, as appropriate, shall obtain independent technical re-
 9 view of industry proposals submitted under this sub-
 10 section.”.

11 **SEC. 313. TECHNICAL AMENDMENTS.**

12 Section 28 of the National Institute of Standards and
 13 Technology Act (15 U.S.C. 278n) is amended—

14 (1) in subsection (b)(1)(B)(ii), by striking “pro-
 15 vision of a minority share of the cost of such joint
 16 ventures for up to 5 years” and inserting in lieu
 17 thereof “the option of provision of either—

18 “(I) a minority share of the cost of
 19 such joint ventures for up to 5 years; or

20 “(II) only direct costs, and not indi-
 21 rect costs, profits, or management fees, for
 22 up to 5 years”; and

23 (2) by adding at the end the following new sub-
 24 section:

1 “(k) Notwithstanding subsections (b)(1)(B)(ii) and
 2 (d)(3) the Director may grant an extension of not to ex-
 3 ceed 6 months beyond the deadlines established under
 4 those subsections for joint venture and single applicant
 5 awardees to expend Federal funds to complete their
 6 projects, if such extension may be granted with no addi-
 7 tional cost to the Federal Government.”.

8 **SEC. 314. TECHNOLOGY MONITORING AND COMPETITIVE**
 9 **ASSESSMENTS.**

10 Section 101(e) of the Stevenson-Wydler Technology
 11 Innovation Act of 1980, as redesignated by section
 12 213(b)(2) of this Act, is amended to read as follows:

13 “(e) OFFICE OF TECHNOLOGY MONITORING AND
 14 COMPETITIVE ASSESSMENT.—(1) The Secretary, through
 15 the Under Secretary, shall establish within the Technology
 16 Administration an Office of Technology Monitoring and
 17 Competitive Assessment, to collect, evaluate, assess, and
 18 disseminate information on—

19 “(A) foreign science and technology, specifically
 20 information assessing foreign capabilities relative to
 21 the United States; and

22 “(B) policies and programs used by foreign gov-
 23 ernments and industries to develop and apply eco-
 24 nomically important critical technologies, how these
 25 policies and programs compare with public and pri-

1 vate activities in the United States, and the effects
2 that these foreign policies and programs have on the
3 competitiveness of United States industry; and

4 “(C) the way in which the economic competi-
5 tiveness of United States industry can be enhanced
6 through Federal programs, including Department of
7 Commerce programs, and evaluations of the effec-
8 tiveness of Federal technology programs in helping
9 to promote United States industrial competitiveness
10 and economic growth.

11 “(2) Based on the information gathered under para-
12 graph (1) of this subsection, the President, with the assist-
13 ance of the Secretary, shall submit to Congress an annual
14 report on United States technology and competitiveness
15 analyzing the condition of United States technology rel-
16 ative to major trading partners, key trends in foreign tech-
17 nology and competitiveness policies and targeting, and the
18 degree to which Federal programs are helping the United
19 States to stay competitive with other countries.

20 “(3) The Office of Technology Monitoring and Com-
21 petitive Assessment is authorized to—

22 “(A) act as a focal point within the Federal
23 Government for the collection and dissemination, in-
24 cluding electronic dissemination, of information on
25 foreign process and product technologies, including

1 information collected under the Japanese Technical
2 Literature Program;

3 “(B) coordinate the extensive foreign technology
4 monitoring and assessment activities already under
5 way in the Federal Government;

6 “(C) act as an electronic clearinghouse for this
7 information or otherwise provide for this function;

8 “(D) direct and fund the collection of additional
9 information;

10 “(E) direct and fund analysis of foreign re-
11 search and development activities and technical ca-
12 pabilities, particularly in those technical areas where
13 the United States is considered to be at par or lag-
14 ging foreign capabilities;

15 “(F) establish a program to identify technical
16 areas needing a full-scale technical evaluation, and
17 provide grants, on a cost-shared basis, to private
18 sector or government-industry joint ventures, to con-
19 duct the evaluation;

20 “(G) establish and administer a fellowship pro-
21 gram to support Technology Fellows in those coun-
22 tries that are major competitors of the United
23 States in critical technologies to collect and provide
24 initial analysis of information on foreign science and
25 technology capabilities; and

1 “(H) work with the Department of State to
 2 place technical experts from the Institute and other
 3 Federal laboratories into United States embassies to
 4 serve as technology attaches and counsellors.

5 **SEC. 315. COMMERCE TECHNOLOGY ADVISORY BOARD.**

6 Title I of the Stevenson-Wydler Technology Innova-
 7 tion Act of 1980 (as amended by title II of this Act) is
 8 further amended by adding at the end thereof the follow-
 9 ing new section:

10 **“SEC. 113. COMMERCE TECHNOLOGY ADVISORY BOARD.**

11 “(a) ESTABLISHMENT.—There is established a Com-
 12 merce Technology Advisory Board (hereafter in this sec-
 13 tion referred to as the ‘Advisory Board’), the purpose of
 14 which is to advise the Secretary, Under Secretary, and Di-
 15 rector regarding ways in which to—

16 “(1) promote the development and rapid appli-
 17 cation of advanced commercial technologies, includ-
 18 ing advanced manufacturing technologies;

19 “(2) strengthen the programs of the Technology
 20 Administration; and

21 “(3) generally improve the global competitive-
 22 ness of industries within the United States.

23 “(b) COMPOSITION.—The Advisory Board shall be
 24 composed of at least 17 members, appointed by the Under
 25 Secretary from among individuals who, because of their

1 experience and accomplishments in technology develop-
 2 ment, business development, or finance are exceptionally
 3 qualified to analyze and formulate policy that would im-
 4 prove the global competitiveness of industries in the Unit-
 5 ed States. The Under Secretary shall designate 1 member
 6 to serve as chairman. Membership of the Advisory Board
 7 shall be composed of—

8 “(1) representatives of—

9 “(A) United States small businesses;

10 “(B) other United States manufacturers;

11 “(C) research universities and independent
 12 research institutes;

13 “(D) State and local government agencies
 14 involved in industrial extension;

15 “(E) national laboratories;

16 “(F) industrial, worker, and professional
 17 organizations; and

18 “(G) financial organizations; and

19 “(2) other individuals that possess important
 20 insight to issues of national competitiveness.

21 “(c) MEETINGS.—(1) The chairman shall call the
 22 first meeting of the Advisory Board not later than 90 days
 23 after the date of enactment of this Act.

24 “(2) The Advisory Board shall meet at least once
 25 every 6 months, and at the call of the Under Secretary.

1 “(d) TRAVEL EXPENSES.—Members of the Advisory
 2 Board, other than full-time employees of the United
 3 States, shall be allowed travel expenses in accordance with
 4 subchapter I of chapter 57 of title 5, United States Code,
 5 while engaged in the business of the Advisory Board.

6 “(e) CONSULTATION.—In carrying out this section,
 7 the Under Secretary shall consult with other agencies, as
 8 appropriate.

9 “(f) TERMINATION.—Section 14 of the Federal Advi-
 10 sory Committee Act shall not apply to the Advisory
 11 Board.”.

12 **SEC. 316. STUDY OF SEMICONDUCTOR LITHOGRAPHY**
 13 **TECHNOLOGIES.**

14 Within 9 months after the date of enactment of this
 15 Act, the Critical Technologies Institute established under
 16 section 822 of the National Defense Authorization Act for
 17 Fiscal Year 1991 (in this section referred to as the “Insti-
 18 tute”) shall, after consultation with the private sector and
 19 appropriate officials from other Federal agencies, submit
 20 to the Committee on Commerce, Science, and Transpor-
 21 tation of the Senate and the Committee on Science, Space,
 22 and Technology of the House of Representatives a report
 23 on advanced lithography technologies for the production
 24 of semiconductor devices. The report shall include the In-
 25 stitute’s evaluation of the likely technical and economic

1 advantages and disadvantages of each such technology, an
2 analysis of current private and Government research to
3 develop each such technology, and any recommendations
4 the Institute may have regarding future Federal support
5 for research and development in advanced lithography.

6 **Subtitle B—Technology Financing**
7 **Pilot Programs**

8 **SEC. 321. FINDINGS AND PURPOSE.**

9 (a) FINDINGS.—Congress finds and declares the fol-
10 lowing:

11 (1) In recent years, financing from venture cap-
12 italists and banks appears to have become more dif-
13 ficult for technology firms in the United States to
14 obtain.

15 (2) While tax incentives are often the preferred
16 method to help firms accelerate the development,
17 commercialization, and production of advanced tech-
18 nology products, these incentives are of limited value
19 to those firms, including start-up firms, which have
20 limited revenues but nonetheless provide much of the
21 Nation's innovation and new employment.

22 (3) Difficulties in obtaining financing particu-
23 larly hurts those technology firms which face foreign
24 competitors which have received substantial direct or
25 indirect financial help from their governments.

1 (4) The Nation would benefit from pilot pro-
 2 grams which involve Government-industry partner-
 3 ships to develop and test innovative industry-led
 4 methods to increase the amount of financing avail-
 5 able to United States technology firms.

6 (b) PURPOSE.—It is the purpose of Congress in this
 7 subtitle to establish, under the Department of Commerce's
 8 Technology Administration, three experimental technology
 9 financing pilot programs.

10 **SEC. 322. CIVILIAN TECHNOLOGY LOAN PROGRAM.**

11 (a) AUTHORITY TO MAKE LOANS.—The Secretary of
 12 Commerce may make loans—

13 (1) acting through the Under Secretary of
 14 Commerce for technology, to small and medium
 15 sized businesses eligible for assistance under section
 16 28 of the National Institute of Standards and Tech-
 17 nology Act (15 U.S.C. 278n), to the extent provided
 18 in section 504(b) of the Congressional Budget Act of
 19 1974; or

20 (2) acting through critical technologies develop-
 21 ment companies licensed under section 323 of this
 22 title, to small and medium sized businesses.

23 (b) PURPOSE.—Loans under this section shall be for
 24 growth, modernization, and expansion of small and me-
 25 dium sized businesses engaged in research, development,

1 demonstration, or exploitation of advanced technologies
2 and products, including those in fields such as automation,
3 electronics, advanced materials, biotechnology, and optical
4 technologies.

5 (c) INTEREST RATE, TERMS, AND CONDITIONS.—

6 Loans under this section shall be made at an interest rate
7 equal to the Government borrowing rate plus an insurance
8 surcharge of up to 2 percent, and shall be subject to such
9 terms and conditions as the Secretary may prescribe.

10 **SEC. 323. ASSISTANCE TO CRITICAL TECHNOLOGY INVEST-**
11 **MENT COMPANIES.**

12 (a) IN GENERAL.—(1) The Secretary, through the
13 Under Secretary, is authorized to provide financial assist-
14 ance to critical technology investment companies licensed
15 under this section, for the purpose of stimulating and ex-
16 panding the flow of private capital to qualified joint ven-
17 tures and qualified individual firms in order to help them
18 finance the development and commercialization of critical
19 civilian technologies.

20 (2) Each critical technology investment company li-
21 censed under this section may provide venture capital to
22 qualified joint ventures and qualified individual firms, in
23 such manner and under such terms as the licensee may
24 fix in accordance with the regulations of the Secretary.
25 Venture capital provided to incorporated qualified joint

1 ventures and individual firms may be provided directly or
2 in cooperation with other investors, incorporated or unin-
3 corporated, through agreements to participate on an im-
4 mediate basis.

5 (3) Each licensee may make loans, directly or in co-
6 operation with other lenders, incorporated or unincor-
7 porated, through agreements to participate on an imme-
8 diate or deferred basis, to qualified joint ventures and
9 qualified individual firms to provide such ventures and
10 firms with funds needed for sound financing related to de-
11 velopment or utilization of critical civilian technologies.

12 (4) This section shall be carried out in a manner that
13 will ensure the maximum participation of private financial
14 sources and ensure prudent diversification and sound
15 management of operations.

16 (b) REQUIREMENTS AND AUTHORITIES.—Except as
17 provided in subsections (c) and (d) of this section, the Sec-
18 retary shall, in providing financial assistance to licensees
19 under the provisions of this section, follow the statutory
20 requirements and use the statutory authorities which
21 apply to the Small Business Administration's Small Busi-
22 ness Investment Program, as set forth in subchapter 14B
23 of title 15, United States Code (15 U.S.C. 681 et seq.).
24 Any amendments to subchapter 14B enacted after the

1 date of enactment of this title shall not apply to this sec-
2 tion unless explicitly provided for in statute.

3 (c) ~~ADDITIONAL AUTHORITIES.~~—In addition to the
4 authorities provided to the Secretary under subsection (b)
5 of this section, the Secretary is authorized to—

6 (1) purchase nonparticipating preferred securi-
7 ties from licensed critical technology investment
8 companies as one way to provide financial assistance
9 to those companies;

10 (2) issue trust certificates representing owner-
11 ship of all or a fractional part of preferred securities
12 issued by licensees and guaranteed by the Secretary
13 under this section, with such trust certificates based
14 on and backed by a trust or pool approved by the
15 Secretary and composed of preferred securities and
16 such other contractual obligations as the Secretary
17 may undertake to facilitate the sale of such trust
18 certificates;

19 (3) guarantee, upon such terms and conditions
20 as are deemed appropriate, the timely payment of
21 the principal of and interest on trust certificates is-
22 sued by the Secretary or the Secretary's agent for
23 purposes of this section, provided that such guaran-
24 tee shall be limited to the extent of the redemption
25 price of and dividends on the preferred securities;

1 plus any related contractual obligations, which com-
 2 pose the trust or pool; and

3 ~~(4) issue its own rules and regulations concern-~~
 4 ~~ing how it will carry out this section under the appli-~~
 5 ~~cable requirements and authorities.~~

6 ~~(d) OTHER PROVISIONS.—(1) Amounts received by~~
 7 ~~the Secretary from the payment of dividends and the re-~~
 8 ~~demption of preferred securities pursuant to this section,~~
 9 ~~and fees paid to the United States by a licensee pursuant~~
 10 ~~to this section, shall be deposited in an account established~~
 11 ~~by the Secretary and shall be available solely for carrying~~
 12 ~~out this section, to the extent provided in advance in ap-~~
 13 ~~propriations Acts.~~

14 ~~(2) Nothing in this section or in any other provision~~
 15 ~~of law imposes any liability on the United States or the~~
 16 ~~Secretary with respect to any obligations entered into, or~~
 17 ~~stocks issued, or commitments made by any licensee oper-~~
 18 ~~ating under this section.~~

19 **SEC. 324. ASSISTANCE TO STATE TECHNOLOGY DEVELOP-**
 20 **MENT PROGRAMS.**

21 ~~(a) IN GENERAL.—The Secretary, through the Under~~
 22 ~~Secretary, may provide financial, technical, and business~~
 23 ~~assistance to programs run by or chartered by State gov-~~
 24 ~~ernments for the purpose of accelerating the development~~
 25 ~~and commercialization of critical civilian technologies, in-~~

1 cluding technologies developed by universities and colleges
2 within the States. Such State technology development pro-
3 grams may—

4 (1) directly fund critical civilian technology de-
5 velopment projects at qualified joint ventures and
6 qualified individual firms; and

7 (2) when appropriate, assist intermediary orga-
8 nizations, including universities, to develop new criti-
9 cal civilian technologies to the point where qualified
10 joint ventures and qualified individual firms will in-
11 vest in their further development and commercializa-
12 tion.

13 (b) ~~FINANCIAL ASSISTANCE.~~—(1) The Secretary may
14 make awards for up to three years to any State technology
15 development program which meets the eligibility require-
16 ments of paragraph (2). State programs which win awards
17 may reapply if they still meet eligibility requirements. Any
18 financial assistance from the Secretary to State technology
19 development programs shall be made only through a com-
20 petitive, merit-reviewed process.

21 (2) A State technology development program must
22 meet the following requirements before it shall be eligible
23 to apply for and receive assistance under this section:

1 (A) at least one-third of the cost of the proposal
 2 to which such assistance applies must be provided by
 3 such State program; and

4 (B) the State program must demonstrate that
 5 any technology or intellectual property developed
 6 under the program shall be made available only to
 7 joint ventures and individual firms which legally
 8 commit to manufacture substantially in the United
 9 States any products resulting from any project fund-
 10 ed in whole or in part by Federal funds provided
 11 under this section.

12 **TITLE IV—ADDITIONAL COM-**
 13 **MERCE DEPARTMENT PROVI-**
 14 **SIONS**

15 **SEC. 401. INTERNATIONAL STANDARDIZATION.**

16 (a) FINDINGS.—The Congress finds that—

17 (1) private sector consensus standards are es-
 18 sential to the timely development of competitive
 19 products;

20 (2) Federal Government contribution of re-
 21 sources, more active participation in the voluntary
 22 standards process in the United States, and assist-
 23 ance, where appropriate, through government to gov-
 24 ernment negotiations, can increase the quality of
 25 United States standards, increase their compatibility

1 with the standards of other countries, and ease ac-
2 cess of United States-made products to foreign mar-
3 kets; and

4 (3) the Federal Government, working in co-
5 operation with private sector organizations including
6 trade associations, engineering societies, and tech-
7 nical bodies, can effectively promote United States
8 Government use of United States consensus stand-
9 ards and, where appropriate, the adoption and Unit-
10 ed States Government use of international stand-
11 ards.

12 (b) STANDARD PILOT PROGRAM.—Section 104(e) of
13 the American Technology Preeminence Act of 1991 is
14 amended—

15 (1) by inserting “(1)” before “Pursuant to
16 the”; and

17 (2) by adding at the end the following new
18 paragraph:

19 “(2) As necessary and appropriate, the Institute shall
20 expand the program established under section 112 of the
21 National Institute of Standards and Technology Author-
22 ization Act for Fiscal Year 1989 (15 U.S.C. 272 note)
23 by extending the existing program and by entering into
24 additional contracts with non-Federal organizations rep-
25 resenting United States companies, as such term is de-

1 ~~fin~~ed in section ~~28(d)(9)(B)~~ of the National Institute of
 2 Standards and Technology Act (15 U.S.C.
 3 ~~278n(d)(9)(B)~~). Such contracts shall require cost sharing
 4 between Federal and non-Federal sources for such pur-
 5 poses. In awarding such contracts, the Institute shall seek
 6 to promote and support the dissemination of United
 7 States technical standards to additional foreign countries,
 8 in cooperation with governmental bodies, private organiza-
 9 tions including standards setting organizations and indus-
 10 try, and multinational institutions that promote economic
 11 development. The organizations receiving such contracts
 12 may establish training programs to bring to the United
 13 States foreign standards experts for the purpose of receiv-
 14 ing in-depth training in the United States standards sys-
 15 tem.”.

16 ~~(c) REPORT ON GLOBAL STANDARDS.~~—The Sec-
 17 retary, in consultation with the Institute and the Com-
 18 merce Technology Advisory Board established under sec-
 19 tion ~~204~~ of this Act, shall submit to the Congress a report
 20 describing the appropriate roles of the Department of
 21 Commerce in aid to United States companies in achieving
 22 conformity assessment and accreditation and otherwise
 23 qualifying their products in foreign markets, and in the
 24 development and promulgation of domestic and global
 25 product and quality standards, including a discussion of

1 the extent to which each of the policy options provided
2 in such Office of Technology Assessment report contrib-
3 utes to meeting the goals of—

4 (1) increasing the international adoption of
5 standards beneficial to United States industries; and

6 (2) improving the coordination of United States
7 representation to international standards setting
8 bodies.

9 (d) ~~FEDERAL GOVERNMENT ROLE.~~—Section 508(a)
10 of the American Technology Preeminence Act of 1991 is
11 amended by adding at the end the following new para-
12 graph:

13 “(6) The appropriate role of the Federal Gov-
14 ernment in aid to United States companies in
15 achieving conformity assessment and accreditation
16 and otherwise qualifying their products in foreign
17 markets, and in the development and promulgation
18 of domestic and global product and quality stand-
19 ards, including a discussion of the extent to which
20 each of the policy options provided in the Office of
21 Technology Assessment report on global standards
22 contributes to meeting the goal of improving the co-
23 ordination of United States representation to inter-
24 national standards-setting bodies.

1 **SEC. 402. MALCOLM BALDRIGE AWARD AMENDMENTS.**

2 (a) ~~Section 108(c)(3) of the Stevenson-Wydler Tech-~~
 3 ~~nology Innovation Act of 1980, as so redesignated by sec-~~
 4 ~~tion 206(b)(4) of this Act, is amended to read as follows:~~

5 “~~(3) No award shall be made within any category or~~
 6 ~~subcategory if there are no qualifying enterprises in that~~
 7 ~~category or subcategory.~~”.

8 (b)(1) ~~Section 108(c)(1) of the Stevenson-Wydler~~
 9 ~~Technology Innovation Act of 1980 (15 U.S.C.~~
 10 ~~3711a(c)(1)) is amended by adding at the end the follow-~~
 11 ~~ing new subparagraph:~~

12 “~~(D) Educational institutions.~~”.

13 (2)(A) Within 1 year after the date of enactment of
 14 this Act, the Secretary shall submit to the Congress a re-
 15 port containing—

16 (i) criteria for qualification for a Malcolm
 17 Baldrige National Quality Award by various classes
 18 of educational institutions;

19 (ii) criteria for the evaluation of applications for
 20 such awards under section 108(d)(1) of the Steven-
 21 son-Wydler Technology Innovation Act of 1980; and

22 (iii) a plan for funding awards described in
 23 clause (i).

24 (B) In preparing the report required under subpara-
 25 graph (A), the Secretary shall consult with the National
 26 Science Foundation and other public and private entities

1 with appropriate expertise, and shall provide for public no-
 2 tice and comment.

3 ~~(C)~~ The Secretary shall not accept applications for
 4 awards described in subparagraph (A)(i) until after the
 5 report required under subparagraph (A) is submitted to
 6 the Congress.

7 **SEC. 403. COOPERATIVE RESEARCH AND DEVELOPMENT**
 8 **AGREEMENTS.**

9 Section 202(d)(1) of the Stevenson-Wydler Tech-
 10 nology Innovation Act of 1980 (15 U.S.C. 3710a(d)(1)),
 11 as redesignated by section 206(b)(6) of this Act, is amend-
 12 ed by inserting “(including both real and personal prop-
 13 erty)” after “or other resources” both places it appears.

14 **SEC. 404. CLEARINGHOUSE ON STATE AND LOCAL INITIA-**
 15 **TIVES.**

16 Section 102(a) of the Stevenson-Wydler Technology
 17 Innovation Act of 1980, as so redesignated by section
 18 206(b)(2) of the Act, as amended by striking “Office of
 19 Productivity, Technology, and Innovation” and inserting
 20 in lieu thereof “Institute”.

21 **SEC. 405. USE OF DOMESTIC PRODUCTS.**

22 (a) PROHIBITION AGAINST FRAUDULENT USE OF
 23 “MADE IN AMERICA” LABELS.—(1) A person shall not
 24 intentionally affix a label bearing the inscription of “Made
 25 in America”, or any inscription with that meaning, to any

1 product sold in or shipped to the United States, if that
 2 product is not a domestic product.

3 ~~(2)~~ A person who violates paragraph ~~(1)~~ shall not be
 4 eligible for any contract for a procurement carried out
 5 with amounts authorized under this Act and the amend-
 6 ments made by this Act, including any subcontract under
 7 such a contract pursuant to the debarment, suspension,
 8 and ineligibility procedures in subpart 9.4 of chapter 1
 9 of title 48, Code of Federal Regulations, or any successor
 10 procedures thereto.

11 ~~(b)~~ COMPLIANCE WITH BUY AMERICAN ACT.—~~(1)~~
 12 Except as provided in paragraph ~~(2)~~, the head of each
 13 agency which conducts procurements shall ensure that
 14 such procurements are conducted in compliance with sec-
 15 tions ~~2~~ through ~~4~~ of the Act of March 3, 1933 (41 U.S.C.
 16 10a through 10c, popularly known as the “Buy American
 17 Act”).

18 ~~(2)~~ This subsection shall apply only to procurements
 19 made for which—

20 ~~(A)~~ amounts are authorized by this Act, and
 21 the amendments made by this Act, to be made avail-
 22 able; and

23 ~~(B)~~ solicitations for bids are issued after the
 24 date of enactment of this Act.

1 ~~(3) The Secretary, before January 1, 1994, shall re-~~
 2 ~~port to the Congress on procurements covered under this~~
 3 ~~subsection of products that are not domestic products.~~

4 ~~(c) DEFINITIONS.—For the purposes of this section,~~
 5 ~~the term “domestic product” means a product—~~

6 ~~(1) that is manufactured or produced in the~~
 7 ~~United States; and~~

8 ~~(2) at least 50 percent of the cost of the arti-~~
 9 ~~cles, materials, or supplies of which are mined, pro-~~
 10 ~~duced, or manufactured in the United States.~~

11 ~~**SEC. 406. SEVERABILITY.**~~

12 ~~If any provision of this Act, or the application thereof~~
 13 ~~to any person or circumstance, is held invalid, the remain-~~
 14 ~~der of this Act and the application thereof to other persons~~
 15 ~~or circumstances shall not be affected thereby.~~

16 ~~**SEC. 407. WIND ENGINEERING RESEARCH PROGRAM.**~~

17 ~~(a) SHORT TITLE.—This section may be cited as the~~
 18 ~~“Wind Engineering Program Act of 1992”.~~

19 ~~(b) FINDINGS AND PURPOSES.—Congress finds the~~
 20 ~~following:~~

21 ~~(1) Hurricanes and tornadoes kill more Ameri-~~
 22 ~~cans and destroy more property than any other nat-~~
 23 ~~ural disaster.~~

24 ~~(2) Each year, in the United States, extreme~~
 25 ~~winds cause billions of dollars of damage to homes,~~

1 schools, and other buildings, roads and bridges, elec-
2 trical power distribution networks, and communica-
3 tions networks.

4 (3) Research on wind and wind engineering has
5 resulted in improved methods for making buildings
6 and other structures less vulnerable to extreme
7 winds, but additional research funding is needed to
8 develop new, improved, and more cost-effective
9 methods of wind-resistant construction.

10 (4) Federal funding for wind engineering re-
11 search has decreased drastically over the last 20
12 years.

13 (5) Wind research has been hampered by a lack
14 of data on near-surface wind speed and distribution
15 during hurricanes, tornadoes, and other severe
16 storms.

17 (6) Many existing methods for wind-resistant
18 construction are inexpensive and easy to implement
19 but often they are not applied because the construc-
20 tion industry and the general public are unaware of
21 such methods.

22 (7) Various Federal agencies have important
23 roles to play in wind engineering research, but at
24 present there is little interagency cooperation in this
25 area.

1 (8) Establishment of a Federal Wind Engineer-
2 ing Program would result in new technologies for
3 wind-resistant construction, broader application of
4 such technologies in construction, and ultimately de-
5 creased loss of life and property due to extreme
6 winds.

7 (c) PURPOSE.—The purpose of this Act is to create
8 a Wind Engineering Program within the National Insti-
9 tute of Standards and Technology, which would—

10 (1) provide for wind engineering research;

11 (2) serve as a clearinghouse for information on
12 wind engineering; and

13 (3) improve interagency coordination on wind
14 engineering research between the National Institute
15 of Standards and Technology, the National Oceanic
16 and Atmospheric Administration, the National
17 Science Foundation, the Federal Aviation Adminis-
18 tration, and other appropriate agencies.

19 (d) ESTABLISHMENT.—Within the National Institute
20 of Standards and Technology, there shall be established
21 a Wind Engineering Program which shall—

22 (1) conduct research and development, in co-
23 operation with the private sector and academia, on
24 new methods for mitigating wind damage due to tor-
25 nadoes, hurricanes, and other severe storms;

1 (2) fund construction and maintenance of wind
2 tunnels and other research facilities needed for wind
3 engineering research;

4 (3) promote the application of existing methods
5 for, and research results on, reducing wind damage
6 to buildings that are usually incompletely or non-en-
7 gineered, such as single family dwellings, mobile
8 homes, light industrial buildings, and small commer-
9 cial structures;

10 (4) transfer technology developed in wind engi-
11 neering research to the private sector so that it may
12 be applied in building codes, design practice, and
13 construction;

14 (5) conduct, in conjunction with the National
15 Oceanic and Atmospheric Administration, post-disas-
16 ter research following hurricanes, tornadoes, and
17 other severe storms to evaluate the vulnerability of
18 different types of buildings to extreme winds;

19 (6) serve as a point of contact for dissemination
20 of research information on wind engineering and
21 work with the private sector to develop education
22 and training programs on construction techniques,
23 developed from research results, for reducing wind
24 damage;

1 (7) work with the National Oceanic and Atmos-
 2 pheric Administration, the Federal Aviation Admin-
 3 istration, and other agencies as is appropriate, on
 4 meteorology programs to collect and disseminate
 5 more data on extreme wind events; and

6 (8) work with the National Science Foundation
 7 to support and expand basic research on wind engi-
 8 neering.

9 **TITLE V—AUTHORIZATIONS OF** 10 **APPROPRIATIONS**

11 **SEC. 501. TECHNOLOGY ADMINISTRATION.**

12 (a) AUTHORIZATION OF APPROPRIATIONS.—There
 13 are authorized to be appropriated to the Secretary, to
 14 carry out the activities of the Under Secretary and the
 15 Assistant Secretary of Commerce for Technology Policy—

16 (1) for the Office of the Under Secretary,
 17 \$5,000,000 for fiscal year 1994 and \$8,000,000 for
 18 fiscal year 1995;

19 (2) for Technology Policy \$5,000,000 for fiscal
 20 year 1994 and \$6,000,000 for fiscal year 1995;

21 (3) for Japanese Technical Literature,
 22 \$2,000,000 for fiscal year 1994 and \$3,000,000 for
 23 fiscal year 1995; and

1 (4) for the Office of Technology Monitoring and
2 Competitive Assessment, \$1,500,000 for fiscal year
3 1994 and \$2,500,000 for fiscal year 1995.

4 (b) TRANSFERS.—(1) Funds may be transferred
5 among the line items listed in subsection (a), so long as—

6 (A) the net funds transferred to or from any
7 line item do not exceed 10 percent of the amount
8 authorized for that line item in such subsection;

9 (B) the aggregate amount authorized under
10 subsection (a) is not changed; and

11 (C) the Committee on Commerce, Science and
12 Transportation of the Senate and the Committee on
13 Science, Space, and Technology of the House of
14 Representatives are notified in advance of any such
15 transfer.

16 (2) The Secretary may propose transfers to or from
17 any line item listed in subsection (a) exceeding 10 percent
18 of the amount authorized for such line item, but such pro-
19 posed transfer may not be made unless—

20 (A) a full and complete explanation of any such
21 proposed transfer and the reason therefor are trans-
22 mitted in writing to the Speaker of the House of
23 Representatives, the President of the Senate, and
24 the appropriate authorizing Committees of the
25 House of Representatives and the Senate; and

1 ~~(B)~~ 30 days have passed following the trans-
 2 mission of such written explanation.

3 ~~(c)~~ NATIONAL TECHNICAL INFORMATION SERVICE
 4 FACILITIES STUDY.—As part of its modernization effort
 5 and before signing a new facility lease, the National Tech-
 6 nical Information Service, in consultation with the General
 7 Services Administration, shall study and report to Con-
 8 gress on the feasibility of accomplishing all or part of its
 9 modernization by signing a long-term lease with an organi-
 10 zation that agrees to supply a facility and supply and peri-
 11 odically upgrade modern equipment which permits the Na-
 12 tional Technical Information Service to receive, store, ma-
 13 nipulate, and print electronically created documents and
 14 reports and to carry out the other functions assigned to
 15 the National Technical Information Service.

16 **SEC. 502. NATIONAL INSTITUTE OF STANDARDS AND TECH-**
 17 **NOLOGY.**

18 ~~(a)~~ INTRAMURAL SCIENTIFIC AND TECHNICAL RE-
 19 SEARCH AND SERVICES.—(1) There are authorized to be
 20 appropriated to the Secretary, to carry out the intramural
 21 scientific and technical research and services activities of
 22 the Institute, \$250,000,000 for fiscal year 1994 and
 23 \$300,000,000 for fiscal year 1995.

24 ~~(2)~~ Of the amount authorized under paragraph (1)—

1 (A) \$1,000,000 for fiscal year 1994 and
 2 \$1,000,000 for fiscal year 1995 are authorized only
 3 for the evaluation of nonenergy-related inventions;

4 (B) \$9,000,000 for fiscal year 1994 and
 5 \$10,000,000 for fiscal year 1995 are authorized only
 6 for the technical competence fund; and

7 (C) \$5,000,000 for fiscal year 1994 and
 8 \$5,000,000 for fiscal year 1995 are authorized only
 9 for the standards pilot project established under sec-
 10 tion 104(e) of the American Technology Pre-emi-
 11 nence Act of 1991.

12 (b) Facilities.—In addition to the amounts author-
 13 ized under subsection (a), there are authorized to be ap-
 14 propriated to the Secretary \$105,000,000 for each of fis-
 15 cal years 1993 and 1995, for the renovation and upgrad-
 16 ing of the Institute's facilities. The Institute may enter
 17 into a contract for the design work for such purposes only
 18 if Federal Government payments under the contract are
 19 limited to amounts provided in advance in appropriations
 20 Acts.

21 (c) EXTRAMURAL INDUSTRIAL TECHNOLOGY SERV-
 22 ICES.—In addition to the amounts authorized under sub-
 23 sections (a) and (b), there are authorized to be appro-
 24 priated to the Secretary, to carry out the extramural in-
 25 dustrial technology services activities of the Institute—

1 (1) for the National Manufacturing Outreach
2 Program, \$150,000,000 for fiscal year 1994 and
3 \$280,000,000 for fiscal year 1995, of which—

4 (A) \$50,000,000 for fiscal year 1994 and
5 \$80,000,000 for fiscal year 1995 are authorized
6 only for the support of Regional Centers for the
7 Transfer of Manufacturing Technology;

8 (B) \$40,000,000 for fiscal year 1994 and
9 \$100,000,000 for fiscal year 1995 are author-
10 ized only for the support of Manufacturing Out-
11 reach Centers;

12 (C) \$40,000,000 for fiscal year 1994 and
13 \$70,000,000 for fiscal year 1995 are authorized
14 only for the State Technology Extension Pro-
15 gram;

16 (D) \$20,000,000 for fiscal year 1994 and
17 \$30,000,000 for fiscal year 1995 are authorized
18 only for the Institute activities in support of the
19 Outreach Program, including support of the
20 Technology Extension Communications Net-
21 work and the associated Clearinghouse; and

22 (2) for the Advanced Technology Program,
23 \$210,000,000 for fiscal year 1994 and
24 \$420,000,000 for fiscal year 1995, of which
25 \$30,000,000 for fiscal year 1994 and \$50,000,000

1 for fiscal year 1995 are authorized only for support
 2 of the Advanced Manufacturing Technology Develop-
 3 ment Program established under section 303 of the
 4 Stevenson-Wydler Technology Innovation Act of
 5 1980.

6 ~~(d) WIND ENGINEERING.~~—(1) There are authorized
 7 to be appropriated to the Institute for the purposes of title
 8 V of this Act, \$1,000,000 for fiscal year 1994 and
 9 \$3,000,000 for fiscal year 1995.

10 ~~(2) Of the amounts appropriated under paragraph~~
 11 ~~(1), no less than 50 percent shall be used for cooperative~~
 12 ~~agreements with the National Oceanic and Atmospheric~~
 13 ~~Administration, the National Science Foundation, and~~
 14 ~~Federal Aviation Administration, or other agencies, for~~
 15 ~~wind engineering research, development of improved prac-~~
 16 ~~tices for structures, and the collection and dissemination~~
 17 ~~of meteorological data needed for wind engineering.~~

18 **SEC. 503. ADDITIONAL ACTIVITIES OF THE TECHNOLOGY**
 19 **ADMINISTRATION.**

20 In addition to the amounts authorized under sections
 21 601 and 602, there are authorized to be appropriated to
 22 the Secretary—

23 (1) for the Civilian Technology Loan Program
 24 established under section 322 of this Act,

1 \$60,000,000 for the period encompassing fiscal
2 years 1994 and 1995;

3 ~~(2) for the Civilian Technologies Venture Cap-~~
4 ~~ital Program established under section 323 of this~~
5 ~~Act, \$105,000,000 for the period encompassing fis-~~
6 ~~cal years 1994 and 1995;~~

7 ~~(3) for assistance to State Technology Assist-~~
8 ~~ance programs, as provided under section 324 of~~
9 ~~this Act, \$25,000,000 for fiscal year 1994 and~~
10 ~~\$50,000,000 for fiscal year 1995; and~~

11 ~~(4) for carrying out the American workforce~~
12 ~~quality partnership program established under sec-~~
13 ~~tion 216 of this Act \$50,000,000 for fiscal year~~
14 ~~1994 and \$50,000,000 for fiscal year 1995.~~

15 Amounts appropriated under paragraph ~~(1) or (2)~~ shall
16 remain available for expenditure through September 30,
17 1996. Of the amounts made available under paragraph ~~(1)~~
18 for a fiscal year, not more than \$2,000,000 or 10 percent,
19 whichever is greater, shall be available for administrative
20 expenses. Of the amounts made available under paragraph
21 ~~(2)~~ for a fiscal year, not more than \$5,000,000 or 10 per-
22 cent, whichever is greater, shall be available for adminis-
23 trative expenses. The Secretary, through the Under Sec-
24 retary and the Director, may accept the transfer of fund-
25 ing appropriated to any other agency for purposes similar

1 or related to those of the programs established and carried
 2 out under title III of the Stevenson-Wydler Technology In-
 3 novation Act of 1980; or the programs established and
 4 carried out under sections 25 and 26 of the National Insti-
 5 tute of Standards and Technology Act, and to use those
 6 funds to implement such programs as provided in those
 7 statutory provisions.

8 **SEC. 504. NATIONAL SCIENCE FOUNDATION.**

9 In addition to such other sums as may be authorized
 10 by other Acts to be appropriated to the Director of the
 11 National Science Foundation, there are authorized to be
 12 appropriated to that Director, to carry out the provisions
 13 of section 221 of this Act, \$50,000,000 for fiscal year
 14 1994 and \$75,000,000 for fiscal year 1995.

15 **SEC. 505. AVAILABILITY OF APPROPRIATIONS.**

16 Appropriations made under the authority provided in
 17 this title shall remain available for obligation, for expendi-
 18 ture, or for obligation and expenditure for periods speci-
 19 fied in the Acts making such appropriations.

20 **TITLE VI—INFORMATION INFRA-**
 21 **STRUCTURE AND TECH-**
 22 **NOLOGY**

23 **SEC. 601. SHORT TITLE.**

24 This title may be cited as the “Information Infra-
 25 structure and Technology Act of 1992”.

1 **SEC. 602. FINDINGS AND PURPOSE.**

2 (a) FINDINGS.—The Congress finds the following:

3 (1) High-performance computing and high-
4 speed networks have proven to be powerful tools for
5 improving America's national security, industrial
6 competitiveness, and research capabilities.

7 (2) Federal programs, like the High-Perform-
8 ance Computing Program established by Congress in
9 1991, have played a key role in maintaining United
10 States leadership in high-performance computing,
11 especially in the defense and research sectors.

12 (3) High-performance computing and high-
13 speed networking have the potential to revolutionize
14 many fields, including education, libraries, health
15 care, and manufacturing, if adequate resources are
16 invested in developing the technology needed to do
17 so.

18 (4) The Federal Government should ensure that
19 the technology developed under research and devel-
20 opment programs like the High-Performance Com-
21 puting Program can be widely applied for the benefit
22 of all Americans.

23 (5) A coordinated, interagency program is need-
24 ed to identify and promote development of applica-
25 tions of high-performance computing and high-speed
26 networking which will provide large economic and

1 social benefits to the Nation. Those so-called “Grand
2 Applications” should include tools for teaching, digi-
3 tal libraries of electronic information, computer sys-
4 tems to improve the delivery of health care, and
5 computer and networking technology to promote
6 United States competitiveness.

7 (6) The Office of Science and Technology Pol-
8 icy is the appropriate office to coordinate such a
9 program.

10 (b) PURPOSE.—It is the purpose of this Act to help
11 ensure the widest possible application of high-performance
12 computing and high-speed networking. This requires that
13 the United States Government—

14 (1) expand Federal support for research and
15 development on applications of high-performance
16 computing and high-speed networks for—

17 (A) improving education at all levels, from
18 preschool to adult education, by developing new
19 educational technology;

20 (B) building digital libraries of electronic
21 information accessible over computer networks
22 like the National Research and Education Net-
23 work;

24 (C) improving the provision of health care
25 by furnishing health care providers and their

1 patients with better, more accurate, and more
 2 timely information; and

3 ~~(D)~~ increasing the productivity of the Na-
 4 tion's workers, especially in the manufacturing
 5 sector; and

6 ~~(2)~~ improve coordination of Federal efforts to
 7 deploy these technologies in cooperation with the pri-
 8 vate sector as part of an advanced, national informa-
 9 tion infrastructure.

10 **SEC. 603. INFORMATION INFRASTRUCTURE DEVELOPMENT**
 11 **PROGRAM.**

12 The National Science and Technology Policy, Organi-
 13 zation, and Priorities Act of 1976 (42 U.S.C. 6601 et seq.)
 14 is amended by adding at the end the following new title:

15 "TITLE VII—INFORMATION INFRASTRUCTURE
 16 DEVELOPMENT PROGRAM

17 "SEC. 701. The Director of the Office of Science and
 18 Technology Policy, through the Federal Coordinating
 19 Council for Science, Engineering, and Technology (here-
 20 after in this title referred to as the 'Council'), shall, in
 21 accordance with this title—

22 "(1) establish an Information Infrastructure
 23 Development Program (hereafter in this title re-
 24 ferred to as the 'Program') that shall provide for a
 25 coordinated interagency effort to develop tech-

1 nologies needed to apply high-performance comput-
2 ing and high-speed networking in education, librar-
3 ies, health care, manufacturing, and other appro-
4 priate fields; and

5 “(2) develop an Information Infrastructure De-
6 velopment Plan (hereafter in this title referred to as
7 the ‘Plan’) describing the goals and proposed activi-
8 ties of the Program.

9 ~~“SEC. 702. (a) The Plan shall contain recommenda-~~
10 ~~tions for a five-year national effort and shall be submitted~~
11 ~~to the Congress within one year after the date of enact-~~
12 ~~ment of this title. The Plan shall be resubmitted upon revi-~~
13 ~~sion at least once every two years thereafter.~~

14 ~~“(b) The Plan shall—~~

15 ~~“(1) establish the goals and priorities for the~~
16 ~~Program for the fiscal year in which the Plan (or re-~~
17 ~~vised Plan) is submitted and the succeeding four fis-~~
18 ~~cal years;~~

19 ~~“(2) set forth the role of each Federal agency~~
20 ~~and department in implementing the Plan;~~

21 ~~“(3) describe the levels of Federal funding for~~
22 ~~each agency and department, and specific activities,~~
23 ~~required to achieve the goals and priorities estab-~~
24 ~~lished under paragraph (1); and~~

1 ~~“(4) assign particular agencies primary respon-~~
2 ~~sibility for developing particular Grand Applications~~
3 ~~of high-performance computing and high-speed net-~~
4 ~~works.~~

5 ~~“(c) Accompanying the Plan shall be—~~

6 ~~“(1) a summary of the achievements of Federal~~
7 ~~efforts during the preceding fiscal year to develop~~
8 ~~technologies needed for deployment of an advanced~~
9 ~~information infrastructure;~~

10 ~~“(2) an evaluation of the progress made toward~~
11 ~~achieving the goals and objectives of the Plan;~~

12 ~~“(3) a summary of problems encountered in im-~~
13 ~~plementing the Plan; and~~

14 ~~“(4) any recommendations regarding additional~~
15 ~~action or legislation which may be required to assist~~
16 ~~in achieving the purposes of this title.~~

17 ~~“(d) The Plan shall address, where appropriate, the~~
18 ~~relevant programs and activities of the following Federal~~
19 ~~agencies and departments:~~

20 ~~“(1) The National Science Foundation.~~

21 ~~“(2) The Department of Commerce, particu-~~
22 ~~larly the National Institute of Standards and Tech-~~
23 ~~nology, the National Oceanic and Atmospheric Ad-~~
24 ~~ministration, and the National Telecommunications~~
25 ~~and Information Administration.~~

1 “(3) The National Aeronautics and Space Ad-
2 ministration.

3 “(4) The Department of Defense, particularly
4 the Defense Advanced Research Projects Agency.

5 “(5) The Department of Energy.

6 “(6) The Department of Health and Human
7 Services, particularly the National Institutes of
8 Health and the National Library of Medicine.

9 “(7) The Department of the Interior, particu-
10 larly the United States Geological Survey.

11 “(8) The Department of Education.

12 “(9) The Department of Agriculture, particu-
13 larly the National Agricultural Library.

14 “(10) Such other agencies and departments as
15 the President or the Chairman of the Council con-
16 siders appropriate.

17 “(e) In addition, the Plan shall take into consider-
18 ation the present and planned activities of the Library of
19 Congress, as deemed appropriate by the Library of Con-
20 gress.

21 “(f) The Council shall—

22 “(1) serve as lead entity responsible for devel-
23 opment of the Plan and interagency coordination of
24 the Program;

1 “(2) coordinate the high-performance comput-
2 ing research and development activities of Federal
3 agencies and departments undertaken pursuant to
4 the Plan and report at least annually to the Presi-
5 dent, through the Chairman of the Council, on any
6 recommended changes in agency or departmental
7 roles that are needed to better implement the Plan;

8 “(3) review, prior to the President’s submission
9 to the Congress of the annual budget estimate, each
10 agency and departmental budget estimate in the
11 context of the Plan and make the results of that re-
12 view available to the appropriate elements of the Ex-
13 ecutive Office of the President, particularly the Of-
14 fice of Management and Budget; and

15 “(4) consult and ensure communication between
16 Federal agencies and research, educational, and in-
17 dustry groups and State agencies conducting re-
18 search and development on and using high-perform-
19 ance computing.

20 “(g) The Director of the Office of Science and Tech-
21 nology Policy shall establish an advisory committee on
22 high-performance computing and high-speed networking
23 and their applications, consisting of prominent representa-
24 tives from industry and academia who are specially quali-
25 fied to provide the Council with advice and information

1 on uses of high-performance computing and high-speed
2 networking. The advisory committee shall provide the
3 Council with an independent assessment of—

4 “(1) progress made in implementing the Plan;

5 “(2) the need to revise the Plan;

6 “(3) the balance between the components of the
7 Plan;

8 “(4) whether the research and development
9 funded under the Plan is helping to maintain United
10 States leadership in the application of computing
11 technology;

12 “(5) ways to ensure government-industry co-
13 operation in implementing the Plan; and

14 “(6) other issues identified by the Director.

15 “(h)(1) Each Federal agency and department in-
16 volved in the program shall, as part of its annual request
17 for appropriations to the Office of Management and Budg-
18 et, submit a report to that Office identifying each element
19 of its high-performance computing activities, which—

20 “(A) specifies whether each such element (i)
21 contributes primarily to the implementation of the
22 Plan or (ii) contributes primarily to the achievement
23 of other objectives but aids Plan implementation in
24 important ways; and

1 “(B) states the portion of its request for appro-
2 priations that is allocated to each element.

3 ~~“(2) The Office of Management and Budget shall re-~~
4 ~~view each such report in light of the goals, priorities, and~~
5 ~~agency and departmental responsibilities set forth in the~~
6 ~~Plan, and shall include, in the President’s annual budget~~
7 ~~estimate, a statement of the portion of each appropriate~~
8 ~~agency or department’s annual budget estimate that is al-~~
9 ~~located to efforts to develop applications of high-perform-~~
10 ~~ance computing.~~

11 ~~“SEC. 703. In this title, the following definitions~~
12 ~~apply:~~

13 ~~“(1) The term ‘Grand Application’ means an~~
14 ~~application of high-performance computing and~~
15 ~~highspeed networking that will provide large eco-~~
16 ~~nomic and social benefits to a broad segment of the~~
17 ~~Nation’s populace.~~

18 ~~“(2) The term ‘information infrastructure’~~
19 ~~means a network of communications systems and~~
20 ~~computer systems designed to exchange information~~
21 ~~among all citizens and residents of the United~~
22 ~~States.”.~~

23 **SEC. 604. APPLICATIONS FOR EDUCATION**

24 ~~(a) RESPONSIBILITIES OF NATIONAL SCIENCE~~
25 ~~FOUNDATION AND OTHER AGENCIES.—In accordance~~

1 with the Plan developed under section 701 of the National
2 Science and Technology Policy, Organization, and Prior-
3 ities Act of 1976 (42 U.S.C. 6601 et seq.); as added by
4 section 3 of this Act, the National Science Foundation and
5 other appropriate agencies shall provide for the develop-
6 ment of high-performance computing and high-speed
7 networking technology for use in education at all levels.
8 Such applications shall include but not be limited to the
9 following:

10 (1) Pilot projects that connect primary and sec-
11 ondary schools to the Internet and the National Re-
12 search and Education Network to aid in develop-
13 ment of the software, hardware, and training mate-
14 rial needed to enable students and teachers to use
15 networks to—

16 (A) communicate with their peers around
17 the country;

18 (B) communicate with educators and stu-
19 dents in colleges and universities;

20 (C) access databases of electronic informa-
21 tion; and

22 (D) access other computing resources.

23 (2) Development of computer software, com-
24 puter systems, and networks for teacher training.

1 (3) Development of advanced educational soft-
2 ware.

3 (b) COOPERATION.—In carrying out this section, the
4 National Science Foundation shall work with the com-
5 puter and communications industry, authors and publish-
6 ers of educational materials, State education departments,
7 local school districts, and the Department of Education,
8 as appropriate.

9 (c) AUTHORIZATION OF APPROPRIATIONS.—There
10 are authorized to be appropriated to the National Science
11 Foundation for the purposes of this section, \$20,000,000
12 for fiscal year 1993, \$40,000,000 for fiscal year 1994, and
13 \$60,000,000 for fiscal year 1995.

14 **SEC. 605. APPLICATIONS FOR MANUFACTURING**

15 (a) ADVANCED MANUFACTURING SYSTEMS AND
16 NETWORKING PROJECTS.—In accordance with the Plan
17 developed under section 701 of the National Science and
18 Technology Policy, Organization, and Priorities Act of
19 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of
20 this Act, the National Institute of Standards and Tech-
21 nology (hereafter in this section referred to as the “Insti-
22 tute”) shall, as provided under section 303 of the Steven-
23 son-Wydler Technology Innovation Act (as amended by
24 title II of this Act) shall establish an Advanced Manufac-
25 turing Program, including advanced manufacturing sys-

1 tems and networking projects. Activities under the Ad-
 2 vanced Manufacturing Program shall, as appropriate, be
 3 coordinated with activities of the Defense Advanced Re-
 4 search Projects Agency, the National Science Foundation,
 5 other Federal agencies, and the States to develop, refine,
 6 test, and transfer advanced computer-integrated electroni-
 7 cally-networked manufacturing technologies and associ-
 8 ated applications.

9 (b) ~~SUPPORT FROM OTHER FEDERAL DEPART-~~
 10 ~~MENTS AND AGENCIES.~~—The Director of the Institute
 11 may request and accept funds, facilities, equipment, or
 12 personnel from other Federal departments and agencies
 13 in order to carry out responsibilities under this section.

14 **SEC. 606. APPLICATIONS FOR HEALTH CARE.**

15 (a) ~~DEVELOPMENT OF TECHNOLOGIES BY NATIONAL~~
 16 ~~INSTITUTES OF HEALTH.~~—In accordance with the Plan
 17 developed under section 701 of the National Science and
 18 Technology Policy, Organization and Priorities Act of
 19 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of
 20 this Act, the National Institutes of Health, and particu-
 21 larly the National Library of Medicine, in cooperation with
 22 the National Science Foundation and other appropriate
 23 agencies, shall develop technologies for applications of
 24 high-performance computing and high-speed networking

1 in the health care sector. Such applications shall include
2 but not be limited to the following;

3 (1) Testbed networks for linking hospitals, clin-
4 ics, doctor's offices, medical schools, medical librar-
5 ies, and universities to enable health care providers
6 and researchers to share medical data and imagery.

7 (2) Software and visualization technology for
8 visualizing the human anatomy and analyzing im-
9 agery from X-rays, CAT scans, PET scans, and
10 other diagnostic tools.

11 (3) Virtual reality technology for simulating op-
12 erations and other medical procedures.

13 (4) Collaborative technology to allow several
14 health care providers in remote locations to provide
15 real-time treatment to patients.

16 (5) Database technology to provide health care
17 providers with access to relevant medical information
18 and literature.

19 (6) Database technology for storing, accessing,
20 and transmitting patients' medical records while pro-
21 tecting the accuracy and privacy of those records.

22 (b) AUTHORIZATION OF APPROPRIATIONS.—There
23 are authorized to be appropriated to the National Library
24 of Medicine for the purposes of this section, \$20,000,000

1 for fiscal year 1993, \$40,000,000 for fiscal year 1994, and
2 \$60,000,000 for fiscal year 1995.

3 **SEC. 607. APPLICATIONS FOR LIBRARIES.**

4 (a) **DIGITAL LIBRARIES.**—In accordance with the
5 Plan developed under section 701 of the National Science
6 and Technology Policy, Organization and Priorities Act of
7 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of
8 this Act, the National Science Foundation, the National
9 Aeronautics and Space Administration, the Defense Ad-
10 vanced Research Projects Agency, and other appropriate
11 agencies shall develop technologies for “digital libraries”
12 of electronic information. Development of digital libraries
13 shall include the following:

14 (1) Development of advanced data storage sys-
15 tems capable of storing hundreds of trillions of bits
16 of data and giving thousands of users nearly instan-
17 taneous access to that information.

18 (2) Development of high-speed, highly accurate
19 systems for converting printed text, page images,
20 graphics, and photographic images into electronic
21 form.

22 (3) Development of database software capable
23 of quickly searching, filtering, and summarizing
24 large volumes of text, imagery, data, and sound.

1 (4) Encouragement of development and adop-
2 tion of standards for electronic data.

3 (5) Development of computer technology to cat-
4 egorize and organize electronic information in a vari-
5 ety of formats.

6 (6) Training of database users and librarians in
7 the use of and development of electronic databases.

8 (7) Development of technology for simplifying
9 the utilization of networked databases distributed
10 around the Nation and around the world.

11 (8) Development of visualization technology for
12 quickly browsing large volumes of imagery.

13 (b) Development of Prototypes.—The National
14 Science Foundation, working with the supercomputer cen-
15 ters it supports, shall develop prototype digital libraries
16 of scientific data available over the Internet and the Na-
17 tional Research and Education Network.

18 (c) DEVELOPMENT OF DATABASES OF REMOTE-
19 SENSING IMAGES.—The National Aeronautics and Space
20 Administration shall develop databases of software and re-
21 mote-sensing images to be made available over computer
22 networks like the Internet.

23 (d) AUTHORIZATION OF APPROPRIATIONS.—(1)
24 There are authorized to be appropriated to the National
25 Science Foundation for the purposes of this section,

1 \$10,000,000 for fiscal year 1993, \$20,000,000 for fiscal
 2 year 1994, \$30,000,000 for fiscal year 1995, \$40,000,000
 3 for fiscal year 1996, and \$50,000,000 for fiscal year 1997.

4 (2) There are authorized to be appropriated to the
 5 National Aeronautics and Space Administration for the
 6 purposes of this section, \$10,000,000 for fiscal year 1993,
 7 \$20,000,000 for fiscal year 1994, and \$30,000,000 for fis-
 8 cal year 1995.

9 **SEC. 608. ACCESS TO SCIENTIFIC AND TECHNICAL INFOR-**
 10 **MATION.**

11 (a) ASSOCIATE DIRECTORS.—Section 203 of the Na-
 12 tional Science and Technology Policy, Organization, and
 13 Priorities Act of 1976 (42 U.S.C. 6612) is amended—

14 (1) by striking “four” in the second sentence
 15 and inserting in lieu thereof “five”; and

16 (2) by adding at the end the following new sen-
 17 tence: “Among other duties, one Associate Director
 18 shall oversee Federal efforts to disseminate scientific
 19 and technical information.”.

20 (b) FUNCTIONS OF DIRECTOR.—Section 204(b) of
 21 the National Science and Technology Policy, Organization,
 22 and Priorities Act of 1976 (42 U.S.C. 6613 (b)) is amend-
 23 ed—

24 (1) by striking “and” at the end of paragraph

25 (3);

- 1 ~~(2) by striking the period at the end of para-~~
 2 ~~graph (4) and inserting in lieu thereof “; and”; and~~
 3 ~~(3) by inserting immediately after paragraph~~
 4 ~~(4) the following new paragraph:~~
 5 ~~(5) assist the President in disseminating sci-~~
 6 ~~entific and technical information.”.~~

7 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

- 8 (a) *SHORT TITLE.*—*This Act may be cited as the*
 9 *“National Competitiveness Act of 1993”.*

- 10 (b) *TABLE OF CONTENTS.*—

Sec. 1. Short title; table of contents.

TITLE I—GENERAL PROVISIONS

Sec. 101. Findings.

Sec. 102. Purposes.

Sec. 103. Definitions.

TITLE II—MANUFACTURING

Sec. 201. Short title.

Subtitle A—Manufacturing Technology and Extension

Sec. 211. Findings and purpose.

Sec. 212. Manufacturing technology and extension amendments to the Stevenson-
Wylder Act.

Sec. 213. Miscellaneous and conforming amendments.

Sec. 214. Manufacturing Technology Centers.

Sec. 215. State Technology Extension Program.

Sec. 216. American workforce quality.

Sec. 217. Report on options for accelerating the adoption of new manufacturing
equipment.

Subtitle B—National Science Foundation Manufacturing Programs

Sec. 221. National Science Foundation manufacturing activities.

TITLE III—CRITICAL TECHNOLOGIES

Sec. 301. Findings.

Sec. 302. Development of plan for the Advanced Technology Program.

Sec. 303. Advanced Technology Program support of large-scale joint ventures.

Sec. 304. Technical amendments.

Sec. 305. Technology financing pilot program.

Sec. 306. Technology monitoring and competitiveness assessment.

- Sec. 307. Commerce Technology Advisory Board.*
Sec. 308. Study of semiconductor lithography technologies.

TITLE IV—ADDITIONAL COMMERCE DEPARTMENT PROVISIONS

- Sec. 401. International standardization.*
Sec. 402. Malcolm Baldrige Award.
Sec. 403. Cooperative research and development agreements.
Sec. 404. Clearinghouse on State and Local Initiatives.
Sec. 405. Use of domestic products.
Sec. 406. Severability.
Sec. 407. Wind engineering research program.

TITLE V—AUTHORIZATIONS OF APPROPRIATIONS

- Sec. 501. Technology Administration.*
Sec. 502. National Institute of Standards and Technology.
Sec. 503. Additional activities of the Technology Administration.
Sec. 504. National Science Foundation.
Sec. 505. Availability of appropriations.

TITLE VI—INFORMATION TECHNOLOGY APPLICATIONS RESEARCH PROGRAM

- Sec. 601. Short title.*
Sec. 602. Findings and purpose.
Sec. 603. Information technology applications research program.
Sec. 604. Network access.
Sec. 605. Applications for education.
Sec. 606. Applications for manufacturing.
Sec. 607. Applications for health care.
Sec. 608. Applications for libraries.
Sec. 609. Applications for government information.
Sec. 610. High-performance computing and applications advisory committee.
Sec. 611. National Research and Education Network amendments.
Sec. 612. Conforming amendments.

1 *TITLE I—GENERAL PROVISIONS*

2 *SEC. 101. FINDINGS.*

3 *Congress finds and declares the following:*

4 *(1) In an increasingly competitive world econ-*
5 *omy, the companies and nations which lead in the*
6 *rapid development, commercialization, and applica-*
7 *tion of new technologies, and in the low-priced, high-*
8 *quality manufacture of products based on those tech-*

1 *nologies, will lead in economic growth, employment,*
2 *and high living standards.*

3 *(2) While the United States remains the world*
4 *leader in science and invention, it has not done as*
5 *well as it should in commercializing and manufactur-*
6 *ing new inventions. This lag and the unprecedented*
7 *competitive challenge that the Nation has faced from*
8 *abroad have contributed to a drop in real wages, liv-*
9 *ing standards, and employment opportunities.*

10 *(3) While the private sector must take the lead*
11 *in the development, application, and manufacture of*
12 *new technologies, the Federal Government should—*

13 *(A) assist industry in the development of*
14 *high-risk, long-term precommercial technologies*
15 *which promise large economic benefits for the*
16 *Nation;*

17 *(B) support industry-led efforts to develop*
18 *and refine advanced manufacturing technologies,*
19 *including technologies which improve productiv-*
20 *ity and quality and which build upon and en-*
21 *hance employee skills;*

22 *(C) work with States, the private sector,*
23 *worker organizations, and technical and profes-*
24 *sional societies to help small- and medium-sized*
25 *manufacturers throughout the Nation to adopt*

1 *best current manufacturing technologies and*
2 *practices, to improve worker skills, to establish*
3 *high-performance work organizations, and to*
4 *prepare, as appropriate, to adopt the advanced*
5 *computer-controlled manufacturing technologies*
6 *of the 21st century; and*

7 *(D) cooperate with industry and academia*
8 *to help create an advanced information infra-*
9 *structure for the United States.*

10 *(4) In working with industry to promote the*
11 *technological leadership and economic growth of the*
12 *United States, the Federal Government also has a re-*
13 *sponsibility to consult with business and labor leaders*
14 *on industry's long-term technological and skill needs,*
15 *to monitor technological trends, production process*
16 *trends, and technology targeting efforts in other na-*
17 *tions, and generally to ensure that Federal technology*
18 *and industrial modernization programs help United*
19 *States industry to remain competitive and create*
20 *good domestic jobs.*

21 *(5) The Department of Commerce, and particu-*
22 *larly its Technology Administration and National In-*
23 *stitute of Standards and Technology, should continue*
24 *to help commercial industry to speed the development*
25 *and commercialization of new technologies, improve*

1 *and modernize manufacturing, adopt new methods of*
2 *production, and ensure a growing and healthy na-*
3 *tional industrial base and good manufacturing jobs.*
4 *To promote the long-term economic growth of the Na-*
5 *tion, these Department of Commerce programs should*
6 *be strengthened and expanded.*

7 **SEC. 102. PURPOSES.**

8 *The purposes of this Act are to—*

9 *(1) strengthen and expand the ability of Federal*
10 *technology programs, particularly those of the Depart-*
11 *ment of Commerce, to support industry-led and State-*
12 *supported efforts to improve the technological capa-*
13 *bilities, manufacturing performance, information in-*
14 *frastructure, and employment opportunities of the*
15 *United States;*

16 *(2) promote and facilitate, particularly through*
17 *the Advanced Technology Program of the Department*
18 *of Commerce, the creation, development, and adoption*
19 *of technologies that will contribute significantly to*
20 *United States economic competitiveness, employment,*
21 *high quality jobs, and prosperity;*

22 *(3) develop a nationwide network of sources of*
23 *technological and industrial modernization advice for*
24 *manufacturers, particularly small- and medium-sized*

1 *firms, and to provide high quality, current informa-*
2 *tion to that network;*

3 (4) *encourage the development and rapid appli-*
4 *cation of advanced manufacturing technologies and*
5 *processes and of advanced workplace practices;*

6 (5) *encourage cooperation among Federal depart-*
7 *ments and agencies to help firms, managers, and*
8 *workers, in a coordinated fashion, to take full advan-*
9 *tage of manufacturing technology, to improve produc-*
10 *tivity and quality, and adopt high-performance work*
11 *organizations which successfully integrate technology*
12 *and employees;*

13 (6) *stimulate the flow of capital to business con-*
14 *cerns engaged principally in development or utiliza-*
15 *tion of critical civilian and other advanced tech-*
16 *nologies;*

17 (7) *ensure the widest possible application of*
18 *high-performance computing and high-speed*
19 *networking and to aid United States industry to de-*
20 *velop an advanced national information infrastruc-*
21 *ture; and*

22 (8) *enhance and expand the core programs of the*
23 *National Institute of Standards and Technology.*

24 **SEC 103. DEFINITIONS.**

25 *For purposes of this Act—*

1 (1) the term “advanced manufacturing tech-
2 nologies” includes——

3 (A) numerically-controlled machine tools,
4 robots, automated process control equipment,
5 computerized flexible manufacturing systems, as-
6 sociated computer software, and other technology
7 for improving manufacturing and industrial
8 production which advance the state-of-the-art
9 and promote high-performance, high-skills sys-
10 tems; and

11 (B) equipment and processes designed to
12 improve manufacturing quality, productivity,
13 and practice, and to promote sustainable devel-
14 opment, including engineering design, quality
15 assurance, concurrent engineering, continuous
16 process production technology, energy efficiency,
17 waste minimization, design for recyclability or
18 parts reuse, inventory management, and en-
19 hanced worker skills;

20 (2) the term “advanced workplace practices”
21 means innovations in work organization and per-
22 formance, including high-performance workplace sys-
23 tems, flexible production techniques, quality pro-
24 grams, continuous improvement, concurrent engineer-
25 ing, close relations between suppliers and customers,

1 *lean manufacturing systems, widely diffused decision-*
 2 *making and work teams, and effective integration of*
 3 *production technology, worker skills and training,*
 4 *and workplace organization;*

5 (3) *the term “Director” means the Director of the*
 6 *Institute;*

7 (4) *the term “Institute” means the National In-*
 8 *stitute of Standards and Technology;*

9 (5) *the term “Secretary” means the Secretary of*
 10 *Commerce;*

11 (6) *the term “source reduction” has the meaning*
 12 *given that term in section 6603 of the Pollution Pre-*
 13 *vention Act of 1990 (42 U.S.C. 13102); and*

14 (7) *the term “Under Secretary” means the*
 15 *Under Secretary of Commerce for Technology.*

16 ***TITLE II—MANUFACTURING***

17 ***SEC. 201. SHORT TITLE.***

18 *This title may be cited as the “Manufacturing Tech-*
 19 *nology and Extension Act of 1993”.*

20 ***Subtitle A—Manufacturing*** 21 ***Technology and Extension***

22 ***SEC. 211. FINDINGS AND PURPOSE.***

23 (a) *FINDINGS.*—*Congress finds and declares the follow-*
 24 *ing:*

1 (1) *United States manufacturers, especially*
2 *small businesses, require the adoption and implemen-*
3 *tation of both modern (that is, appropriate and cur-*
4 *rently available) technology and advanced manufac-*
5 *turing and process technologies to meet the challenge*
6 *of foreign competition.*

7 (2) *The development and deployment of modern*
8 *and advanced manufacturing technologies are vital to*
9 *the economic growth, environmental sustainability,*
10 *standard of living, competitiveness in world markets,*
11 *and national security of the United States.*

12 (3) *New developments in flexible, computer-inte-*
13 *grated manufacturing, electronic manufacturing com-*
14 *munications networks, and other new technologies*
15 *make possible dramatic improvements across all in-*
16 *dustrial sectors in productivity, quality, and the*
17 *speed with which manufacturers can respond to*
18 *changing market opportunities.*

19 (4) *The Department of Commerce's Technology*
20 *Administration, in cooperation with other Federal de-*
21 *partments and agencies, can continue to play an im-*
22 *portant role in assisting United States industry to*
23 *develop, test, and deploy modern and advanced man-*
24 *ufacturing technologies and advanced workplace prac-*
25 *tices.*

1 (b) *PURPOSE.*—*It is the purpose of this subtitle to help*
 2 *ensure the continued leadership of the United States in*
 3 *manufacturing by enhancing the Department of Com-*
 4 *merce’s technology programs to—*

5 (1) *provide domestic manufacturers, especially*
 6 *small- and medium-sized companies and their*
 7 *workforces, with ready access to high quality advice*
 8 *and assistance in the development, deployment, and*
 9 *improvement of modern manufacturing technology,*
 10 *and in solving their specific technology-based prob-*
 11 *lems; and*

12 (2) *encourage, facilitate, and promote the devel-*
 13 *opment and adoption of advanced manufacturing*
 14 *technologies and advanced workplace practices by the*
 15 *private sector.*

16 ***SEC. 212. MANUFACTURING TECHNOLOGY AND EXTENSION***
 17 ***AMENDMENTS TO THE STEVENSON-WYDLER***
 18 ***ACT.***

19 *The Stevenson-Wydler Technology Innovation Act of*
 20 *1980 (15 U.S.C. 3701 et seq.) is amended by adding at the*
 21 *end the following new title:*

1 **“TITLE II—MANUFACTURING**
2 **TECHNOLOGY**

3 **“SEC. 301. STATEMENT OF POLICY.**

4 *“Congress declares that it is the policy of the United*
5 *States that—*

6 *“(1) Federal agencies, particularly the Depart-*
7 *ment of Commerce, shall work with industry and*
8 *labor to ensure that within 10 years of the date of en-*
9 *actment of this title the United States is second to no*
10 *other nation in the development, deployment, and use*
11 *of advanced manufacturing technologies;*

12 *“(2) all the major Federal research and develop-*
13 *ment agencies shall place a high priority on the devel-*
14 *opment and deployment of skill-based and advanced*
15 *manufacturing technologies, and shall work closely*
16 *with United States industry and with the Nation’s*
17 *universities to develop and test those technologies;*

18 *“(3) since the development of new skills in the*
19 *existing and entry workforce, and the development of*
20 *new organizational and managerial approaches, are*
21 *integral parts of successfully deploying advanced*
22 *manufacturing and related technologies, advanced*
23 *workplace practices should be developed and deployed*
24 *simultaneously and in a coordinated fashion with the*

1 *development and deployment of advanced manufac-*
 2 *turing technologies; and*

3 *“(4) other Federal departments and agencies*
 4 *which work with civilian industry and labor may, as*
 5 *appropriate and consistent with applicable statutes*
 6 *and duties, work with the Department of Commerce.*

7 ***“SEC. 302. ROLE OF THE DEPARTMENT OF COMMERCE.***

8 *“(a) IN GENERAL.—The Department of Commerce*
 9 *shall, consistent with the policy declared in section 301,*
 10 *work with United States industry and labor and, as appro-*
 11 *priate, other Federal departments and agencies to—*

12 *“(1) help develop new generic advanced manu-*
 13 *facturing technologies, including advanced flexible*
 14 *computer-integrated manufacturing systems and elec-*
 15 *tronic communications networks;*

16 *“(2) assist the States and the private sector to*
 17 *help United States manufacturers, especially small-*
 18 *and medium-sized manufacturing enterprises, to*
 19 *adopt best current manufacturing technologies and*
 20 *workplace practices and, as appropriate, new ad-*
 21 *vanced manufacturing equipment and techniques; and*

22 *“(3) work with the private sector, other Federal*
 23 *departments and agencies, State and local govern-*
 24 *ments, and educational institutions as a catalyst to*
 25 *help develop new manufacturing business practices*

1 *and arrangements, accounting standards, improved*
 2 *supplier-customer relations, manufacturing mod-*
 3 *ernization and investment justification strategies, and*
 4 *other steps which would accelerate the development,*
 5 *deployment, and use of advanced manufacturing tech-*
 6 *nologies by United States industry, as well as evalu-*
 7 *ate foreign programs to modernize manufacturing.*

8 “(b) *TWENTY-FIRST CENTURY MANUFACTURING IN-*
 9 *FRAStructure PROGRAM.—(1) As one important step to*
 10 *carry out the responsibilities of the Department of Com-*
 11 *merce under subsection (a), there is established within the*
 12 *Institute a Twenty-First Century Manufacturing Infra-*
 13 *structure Program, which shall include—*

14 “(A) *the Advanced Manufacturing Technology*
 15 *Development Program established under section 303*
 16 *of this Act; and*

17 “(B) *the Manufacturing Extension Partnership*
 18 *established under section 304 of this Act and the asso-*
 19 *ciated programs established under sections 25 and 26*
 20 *of the National Institute of Standards and Technology*
 21 *Act (15 U.S.C. 278k and 278l).*

22 “(2) *The Secretary, through the Under Secretary and*
 23 *the Director, may accept the transfer of funds from any*
 24 *other Federal agency and may use those funds to implement*

1 *the Twenty-First Century Manufacturing Infrastructure*
2 *Program and support its activities.*

3 ***“SEC. 303. ADVANCED MANUFACTURING TECHNOLOGY DE-***
4 ***VELOPMENT PROGRAM.***

5 *“(a) PROGRAM DIRECTION.—The Secretary, through*
6 *the Under Secretary and the Director, shall establish an*
7 *Advanced Manufacturing Technology Development Pro-*
8 *gram which shall include advanced manufacturing systems*
9 *and networking projects.*

10 *“(b) PROGRAM GOAL.—The goal of the Advanced Man-*
11 *ufacturing Technology Development Program is to create*
12 *collaborative multiyear technology development programs*
13 *involving United States industry and, as appropriate, other*
14 *Federal agencies, the States, worker organizations, univer-*
15 *sities, and other interested persons, in order to develop, re-*
16 *fine, test, and transfer design and manufacturing tech-*
17 *nologies and associated applications, including advanced*
18 *computer integration, skill-based manufacturing systems,*
19 *networking, and electronic data exchange.*

20 *“(c) PROGRAM COMPONENTS.—The Advanced Manu-*
21 *facturing Technology Development Program shall include—*

22 *“(1) the advanced manufacturing research and*
23 *development activities of the Institute; and*

24 *“(2) one or more technology development testbeds*
25 *within the United States, selected in accordance with*

1 *procedures, including cost sharing, established for the*
2 *Advanced Technology Program under section 28 of the*
3 *National Institute of Standards and Technology Act*
4 *(15 U.S.C. 278n), whose purpose shall be to develop,*
5 *refine, test, and transfer advanced manufacturing*
6 *and networking technologies and associated applica-*
7 *tions through a direct manufacturing process.*

8 “(d) *ACTIVITIES.—The Advanced Manufacturing*
9 *Technology Development Program, under the coordination*
10 *of the Secretary, through the Director and, as appropriate,*
11 *in consultation with other Federal officials, shall—*

12 “(1) *test and, as appropriate, develop the equip-*
13 *ment, computer software, and systems integration*
14 *necessary for the successful operation within the Unit-*
15 *ed States of advanced design and manufacturing sys-*
16 *tems and associated electronic networks, with an em-*
17 *phasis on technologies which both promote United*
18 *States economic competitiveness and build on and ex-*
19 *pand the skills of United States workers;*

20 “(2) *establish at the Institute and the technology*
21 *development testbed or testbeds—*

22 “(A) *prototype advanced computer-inte-*
23 *grated manufacturing systems; and*

1 “(B) prototype electronic networks linking
2 manufacturing systems, including networks link-
3 ing customer firms and supplier firms;

4 “(3) assist industry to develop and implement
5 voluntary consensus standards relevant to advanced
6 computer-integrated manufacturing operations, in-
7 cluding standards for networks, electronic data inter-
8 change, and digital product data specifications;

9 “(4) help to make high-performance computing
10 and networking technologies an integral part of de-
11 sign and production processes where appropriate;

12 “(5) conduct research to identify and overcome
13 technical barriers to the successful and cost-effective
14 operation of advanced manufacturing systems and
15 networks;

16 “(6) facilitate industry efforts to develop and test
17 new applications for manufacturing systems and net-
18 works, including both highly flexible and low-pollu-
19 tion manufacturing technologies;

20 “(7) conduct research in advanced workplace
21 practices related to and necessary for the successful
22 deployment of advanced manufacturing technologies;

23 “(8) involve in the Advanced Manufacturing
24 Technology Development Program, to the maximum
25 extent practicable, both those United States companies

1 *which make manufacturing and computer equipment*
2 *and a broad range of personnel from those companies*
3 *which buy the equipment;*

4 *“(9) identify training needs, as appropriate, for*
5 *company managers, engineers, and employees in the*
6 *operation and applications of advanced manufactur-*
7 *ing technologies and networks, with a particular em-*
8 *phasis on training for production workers in the effec-*
9 *tive use of new technologies;*

10 *“(10) work with private industry, worker orga-*
11 *nizations, the Department of Labor, technical and*
12 *professional societies, universities, and other inter-*
13 *ested parties to develop standards for the use of ad-*
14 *vanced computer-based training systems, including*
15 *multimedia and interactive learning technologies that*
16 *assure that production workers effectively learn,*
17 *adapt, and utilize advanced manufacturing tech-*
18 *nologies and workplace practices;*

19 *“(11) involve small- and medium-sized manufac-*
20 *turers in its activities;*

21 *“(12) exchange information and personnel, as*
22 *appropriate, between the technology development*
23 *testbeds and the electronic networks created under this*
24 *section; and*

1 “(13) incorporate and experiment with source re-
2 duction techniques and technologies at the testbed or
3 testbeds, consulting, as appropriate, with other Fed-
4 eral officials.

5 “(e) *TESTBED AWARDS*.—(1) In selecting applicants
6 to receive awards under subsection (c)(2), the Secretary
7 shall give particular consideration to applications that have
8 existing computer expertise in the management of business,
9 product, and process information such as digital data prod-
10 uct and process technologies and customer-supplier infor-
11 mation systems, and the ability to diffuse such expertise
12 into industry, and that, in the case of joint research and
13 development ventures, include both suppliers and users of
14 advanced manufacturing and computer equipment or sys-
15 tems.

16 “(2) An industry-led joint research and development
17 venture applying for an award under subsection (c)(2) may
18 include one or more State research organizations, univer-
19 sities, independent research organizations, or Regional Cen-
20 ters for the Transfer of Manufacturing Technology, as cre-
21 ated under section 25 of the National Institute of Standards
22 and Technology Act (15 U.S.C. 278k).

23 “(f) *ADVICE AND ASSISTANCE*.—(1) Within 6 months
24 after the date of enactment of this title, and before any re-
25 quest for proposals is issued, the Secretary shall hold one

1 *or more workshops to solicit advice from United States in-*
 2 *dustry and worker organizations and from other Federal*
 3 *agencies, particularly the Departments of Defense and*
 4 *Labor, regarding the specific missions and activities of the*
 5 *testbeds.*

6 “(2) *The Secretary shall, to the greatest extent possible,*
 7 *coordinate activities under this section with activities of*
 8 *other Federal agencies and initiatives relating to Computer-*
 9 *Aided Acquisition and Logistics Support, electronic data*
 10 *interchange, flexible computer-integrated manufacturing,*
 11 *and enterprise integration.*

12 “(3) *The Secretary may request and accept funds, fa-*
 13 *cilities, equipment, or personnel from other Federal agencies*
 14 *in order to carry out responsibilities under this section.*

15 “(g) *APPLICATION OF ANTITRUST LAWS.—Nothing in*
 16 *this section shall be construed to create any immunity to*
 17 *any civil or criminal action under any Federal or State*
 18 *antitrust law, or to alter or restrict in any manner the ap-*
 19 *plicability of any Federal or State antitrust law.*

20 **“SEC. 304. MANUFACTURING EXTENSION PARTNERSHIP.**

21 “(a) *ESTABLISHMENT AND PURPOSE.—There is estab-*
 22 *lished a Manufacturing Extension Partnership (hereafter in*
 23 *this section referred to as the ‘Partnership’). The Secretary,*
 24 *acting through the Under Secretary and the Director, shall*
 25 *implement and coordinate the Partnership in accordance*

1 *with an initial plan that shall be prepared and submitted*
2 *to Congress within 6 months after the date of enactment*
3 *of this title and a 5-year plan for the Partnership that shall*
4 *be submitted to Congress within 1 year after such date of*
5 *enactment. The 5-year plan shall be updated and submitted*
6 *to Congress annually. The purpose of the Partnership is to*
7 *link and strengthen the Nation's manufacturing extension*
8 *centers and activities in order to assist United States man-*
9 *ufacturers, especially small- and medium-sized firms, to ex-*
10 *pand and accelerate the use of modern manufacturing prac-*
11 *tices, and to accelerate the development and use of advanced*
12 *manufacturing technology and advanced workplace prac-*
13 *tices.*

14 “(b) *COMPONENTS.*—*The Partnership shall be a coop-*
15 *erative effort of the Department of Commerce, the States,*
16 *industry and labor, nonprofit organizations, and, as appro-*
17 *priate, other Federal agencies to provide a national system*
18 *of manufacturing extension centers and technical services*
19 *to United States companies, particularly small- and me-*
20 *dium-sized manufacturers. The Partnership shall include*
21 *the following components:*

22 “(1) *Manufacturing Outreach Centers, as author-*
23 *ized under subsection (c);*

24 “(2) *Regional Centers for the Transfer of Manu-*
25 *facturing Technology, as established under section 25*

1 *of the National Institute of Standards and Technology*
2 *Act (15 U.S.C. 278k), and the State Technology Ex-*
3 *tension Program, as established under section 26 of*
4 *the National Institute of Standards and Technology*
5 *Act (15 U.S.C. 278l);*

6 “(3) *an activity, coordinated and funded by the*
7 *Institute, which links and supports Manufacturing*
8 *Outreach Centers and Regional Centers for the Trans-*
9 *fer of Manufacturing Technology, and which operates*
10 *the information network provided for under sub-*
11 *section (d) and the clearinghouse system developed*
12 *under subsection (e); and*

13 “(4) *such technology and manufacturing exten-*
14 *sion centers supported by other Federal departments*
15 *and agencies, States, industry, and nonprofit organi-*
16 *zations as the Secretary may deem appropriate for*
17 *inclusion in the Partnership.*

18 “(c) *MANUFACTURING OUTREACH CENTERS.—(1)*
19 *Government and private sector organizations, actively en-*
20 *gaged in technology or manufacturing extension activities,*
21 *may apply to the Secretary to be designated as Manufactur-*
22 *ing Outreach Centers. Eligible organizations may include*
23 *Federal, State, and local government agencies, their exten-*
24 *sion programs, and their laboratories; small business devel-*
25 *opment centers; and appropriate programs run by profes-*

1 sional and technical societies, worker organizations, indus-
2 trial organizations, for-profit or nonprofit organizations,
3 community development organizations, State universities
4 and other universities, community colleges, and technical
5 schools and colleges, including, where appropriate, vendor-
6 supported demonstrations of production applications.

7 “(2) Any Regional Center for the Transfer of Manufac-
8 turing Technology may apply to the Secretary to establish
9 a Manufacturing Outreach Center, managed by or in co-
10 operation with such Regional Center, which extends the ef-
11 fective service area of such Regional Center. Funding for
12 the establishment and management of such Outreach Center
13 may be awarded to such Regional Center, notwithstanding
14 the restrictions of paragraph (5).

15 “(3) The Secretary shall establish terms and conditions
16 of participation and may provide financial assistance, on
17 a cost-shared basis and through competitive, merit-based re-
18 view processes, to nonprofit or government participants
19 throughout the United States to enable them to—

20 “(A) join the Partnership and disseminate its
21 technical and information services to United States
22 manufacturing firms, particularly small- and me-
23 dium-sized firms; and

24 “(B) strengthen their direct assistance to small-
25 and medium-sized United States manufacturing firms

1 to expand and accelerate the use of modern and ad-
2 vanced manufacturing practices.

3 “(4) If a State plan for technology extension exists in
4 a State where an applicant for financial assistance under
5 this subsection is operating or plans to operate, the appli-
6 cant shall demonstrate in its application that its proposal
7 is compatible with such State plan.

8 “(5) If a Manufacturing Outreach Center is in or near
9 a State which has a Regional Center for the Transfer of
10 Manufacturing Technology, the Director shall, as appro-
11 priate, encourage the Outreach Center to cooperate with the
12 Regional Center in coordinating its proposals and ongoing
13 programs to serve manufacturers in the region. Manufac-
14 turing Outreach Centers may not concurrently be des-
15 ignated as Regional Centers for the Transfer of Manufactur-
16 ing Technology under section 25 of the National Institute
17 of Standards and Technology Act.

18 “(6) Financial assistance may be awarded under this
19 subsection for an initial period not to exceed 3 years and
20 may, subject to successful evaluation by the Institute, be re-
21 newed for additional periods, not to exceed 3 years each.
22 Such assistance may not at any time exceed 50 percent
23 of the operating costs and in-kind contributions of the
24 recipient.

1 “(d) *MANUFACTURING EXTENSION INFORMATION NET-*
2 *WORK.*—The Department of Commerce shall provide for an
3 *instantaneous, interactive information network to serve the*
4 *Partnership, to facilitate interaction among Manufacturing*
5 *Outreach Centers, Regional Centers for the Transfer of*
6 *Manufacturing Technology, and Federal agencies, and to*
7 *permit the collection and dissemination in electronic form,*
8 *in a timely and accurate manner, of information described*
9 *in subsection (e). Such information network shall, wherever*
10 *practicable, make use of existing computer networks, data*
11 *bases, and electronic bulletin boards. Information network*
12 *arrangements, including user fees and appropriate elec-*
13 *tronic access for information suppliers and users, shall be*
14 *addressed in the 5-year plan prepared under subsection (a).*
15 *The Secretary shall, to the extent practicable, coordinate*
16 *these information network activities with the relevant ac-*
17 *tivities of other Federal agencies, particularly the advanced*
18 *manufacturing and enterprise integration activities of the*
19 *Department of Defense.*

20 “(e) *CLEARINGHOUSE.*—(1) *The Secretary shall de-*
21 *velop a clearinghouse system, using the Institute, the Na-*
22 *tional Technical Information Service, and private sector in-*
23 *formation providers and carriers, where appropriate, to—*

24 “(A) *identify expertise and acquire information,*
25 *appropriate to the purpose of the Partnership stated*

1 *in subsection (a), from all available Federal sources,*
2 *and where appropriate from other sources, providing*
3 *assistance where necessary in making such informa-*
4 *tion electronically available and compatible with the*
5 *information network established under subsection (d);*

6 *“(B) ensure ready access by United States man-*
7 *ufacturers and other interested private sector parties*
8 *to the most recent relevant available such information*
9 *and expertise; and*

10 *“(C) to the extent practicable, inform such man-*
11 *ufacturers of the availability of such information.*

12 *“(2) The clearinghouse shall include information*
13 *available electronically regarding—*

14 *“(A) activities of Manufacturing Outreach Cen-*
15 *ters, Regional Centers for the Transfer of Manufactur-*
16 *ing Technology, the State Technology Extension Pro-*
17 *gram, and the users of the information network;*

18 *“(B) domestic and international standards from*
19 *the Institute and private sector organizations and*
20 *other export promotion information, including con-*
21 *formity assessment requirements and procedures;*

22 *“(C) the Malcolm Baldrige National Quality*
23 *Award program, and quality principles and stand-*
24 *ards;*

1 “(D) manufacturing processes that minimize
2 waste and negative environmental impact;

3 “(E) advanced workplace practices that can im-
4 prove quality, response time, and flexibility in manu-
5 facturing;

6 “(F) federally funded technology development
7 and transfer programs;

8 “(G) responsibilities assigned to the Clearing-
9 house for State and Local Initiatives on Productivity,
10 Technology, and Innovation under section 102;

11 “(H) how to access data bases and services;

12 “(I) skills training, particularly for production
13 workers, that is available through trade and profes-
14 sional organizations, federally supported programs,
15 State resources, private industry, or other organiza-
16 tions; and

17 “(J) other subjects relevant to the ability of com-
18 panies to manufacture and sell competitive products
19 throughout the world.

20 “(f) PRINCIPLES.—In carrying out this section, the
21 Department of Commerce shall take into consideration the
22 following principles:

23 “(1) The Partnership and the information net-
24 work provided for under subsection (d) shall be estab-
25 lished and operated through cooperation and co-fund-

1 *ing among Federal, State and local governments,*
2 *other public and private contributors, and end users.*

3 “(2) *The Partnership and the information net-*
4 *work shall utilize and leverage, to the extent prac-*
5 *ticable, existing organizations, data bases, electronic*
6 *networks, facilities, and capabilities, and shall be de-*
7 *signed to complement rather than supplant State and*
8 *local programs.*

9 “(3) *The Partnership should, to the extent prac-*
10 *ticable, involve key stakeholders at all levels in the*
11 *planning and governance of modernization strategies;*
12 *concentrate on assisting local clusters of firms; assist*
13 *rural as well as urban manufacturers; promote col-*
14 *laborative learning and cooperative action among*
15 *manufacturers; link industrial modernization pro-*
16 *grams tightly to existing and future Federal training*
17 *initiatives, including those for youth apprenticeship*
18 *programs and for assisting other workers; encourage*
19 *small firms to seek modernization services by working*
20 *with major manufacturers to strengthen and coordi-*
21 *nate their supplier assessment, certification, and de-*
22 *velopment programs; encourage small firms, as ap-*
23 *propriate, to select manufacturing equipment and*
24 *practices which build upon and expand the skills of*
25 *their employees; identify and honor best practices by*

1 *firms and the programs that support them, including*
2 *both technology and workplace practices; provide*
3 *funding based on performance and ensure rigorous*
4 *evaluation of extension services; as appropriate, co-*
5 *ordinate Federal programs that support manufactur-*
6 *ing modernization; work with Federal, State, local,*
7 *and private organizations so that Manufacturing*
8 *Outreach Centers and Regional Centers for the Trans-*
9 *fer of Manufacturing Technology can provide referrals*
10 *to other important business services, such as assist-*
11 *ance with financing, training, and exporting, and*
12 *contribute to local business climates supportive of*
13 *high-performance manufacturing.*

14 *“(4) The Partnership and the information net-*
15 *work provided for under subsection (d) shall be subject*
16 *to all applicable provisions of law for the protection*
17 *of trade secrets and business confidential information.*

18 *“(5) Local or regional needs should determine*
19 *the management structure and staffing of the Manu-*
20 *facturing Outreach Centers. The Partnership shall*
21 *strive for geographical balance and for balance be-*
22 *tween urban and rural recipients, with the ultimate*
23 *goal of access for all United States manufacturers.*

24 *“(6) Manufacturing Outreach Centers should*
25 *have the capability to deliver outreach services di-*

1 *rectly to manufacturers; actively work with, rather*
2 *than supplant, the private sector; help firms assess*
3 *needs regarding technology, workplace practices, and*
4 *training; and to the extent practicable, maximize the*
5 *exposure of manufacturers to demonstrations of mod-*
6 *ern technologies in use.*

7 *“(7) Manufacturing Outreach Centers shall focus,*
8 *where possible, on the development and deployment of*
9 *flexible manufacturing technologies and practices ap-*
10 *plicable to both defense and commercial applications*
11 *and on opportunities to modernize operations in ways*
12 *which improve productivity, reduce waste and pollu-*
13 *tion, and increase energy efficiency.*

14 *“(8) The Department of Commerce shall develop*
15 *mechanisms for—*

16 *“(A) soliciting the perspectives of manufac-*
17 *turers using the services of the Manufacturing*
18 *Outreach Centers and Regional Centers for the*
19 *Transfer of Manufacturing Technology;*

20 *“(B) assisting in the training of technology*
21 *extension agents and in helping them dissemi-*
22 *nate information on best available manufactur-*
23 *ing technologies, including technologies for source*
24 *reduction, and workplace practices; and*

1 “(C) rigorously evaluating the effectiveness
2 of the Manufacturing Outreach Centers and other
3 components of the Partnership.

4 “(9) Nothing in this section shall be construed as
5 limiting or interfering with any collective bargaining
6 agreement. Regional Centers for the Transfer of Man-
7 ufacturing Technology and Manufacturing Outreach
8 Centers shall, as practicable, respect any collective
9 bargaining agreement which is in force at a client
10 firm.

11 “(g) DISSEMINATION OF SOURCE REDUCTION AND EN-
12 ERGY EFFICIENCY TECHNOLOGIES.—(1) The Regional Cen-
13 ters for the Transfer of Manufacturing Technology and
14 Manufacturing Outreach Centers shall make available
15 source reduction and energy efficiency assessments to their
16 interested client companies. These assessments shall assist
17 such interested client companies in identifying opportuni-
18 ties for energy conservation and source reduction, and thus
19 reduce operating costs, through either improvement in man-
20 ufacturing processes or the purchase of new equipment.

21 “(2) The Secretary is authorized to work with other
22 appropriate Federal officials and other parties to provide
23 employees of Regional Centers and Outreach Centers with
24 the training needed to carry out the assessments specified
25 in paragraph (1).

1 **“SEC. 305. INDUSTRY-LED MANUFACTURING ADVISORY**
2 **COMMITTEE.**

3 “(a) *ESTABLISHMENT.*—The Director of the Office of
4 Science and Technology Policy, after consultation with the
5 Secretary and other appropriate Federal officials, shall es-
6 tablish a Manufacturing Advisory Committee (hereafter in
7 this section referred to as the ‘Committee’), led by United
8 States industry officials, to provide to the Director of the
9 Office of Science and Technology Policy advice and, as ap-
10 propriate, guidance to Federal manufacturing programs.

11 “(b) *FUNCTIONS.*—The Committee shall—

12 “(1) collect and analyze information on the
13 range of factors which determine the success of United
14 States-based manufacturing industries, and particu-
15 larly factors regarding the development and deploy-
16 ment of advanced manufacturing technologies and the
17 application of best manufacturing practices;

18 “(2) identify areas where appropriate coopera-
19 tion between the Federal Government and industry
20 and labor, including Government support for indus-
21 try-led joint research and development ventures and
22 for manufacturing extension activities, would enhance
23 United States industrial competitiveness, and provide
24 advice and guidance for such cooperative efforts;

25 “(3) provide guidance on what Federal policies
26 and practices are necessary to strengthen United

1 *States-based manufacturing, particularly Federal*
2 *policies and practices regarding research budgets,*
3 *interagency coordination and initiatives, technology*
4 *transfer, regulation, and procurement; and*

5 *“(4) generally develop recommendations for guid-*
6 *ing Federal agency and interagency activities related*
7 *to United States-based manufacturing.*

8 *“(c) MEMBERSHIP AND PROCEDURES.—(1) The Com-*
9 *mittee shall be composed of 16 members, of whom—*

10 *“(A) 6 members shall be the Director of the Of-*
11 *fice of Science and Technology Policy, the Secretary,*
12 *the Secretary of Defense, the Secretary of Energy, the*
13 *Secretary of Labor, and the Director of the National*
14 *Science Foundation, or their designees; and*

15 *“(B) 10 members shall, within 120 days after the*
16 *date of enactment of this title, be appointed by the*
17 *President, acting through the Director of the Office of*
18 *Science and Technology Policy, from the private*
19 *manufacturing industry, worker organizations, tech-*
20 *nical and professional societies, State technology*
21 *agencies, and academia.*

22 *At least two of the members appointed under subparagraph*
23 *(B) shall be from small business.*

1 “(2) *The Director of the Office of Science and Tech-*
2 *nology Policy or such Director’s designee shall chair the*
3 *Committee.*

4 “(3) *The chairman shall call the first meeting of the*
5 *Committee within 30 days after the appointment of mem-*
6 *bers is completed.*

7 “(4) *The Committee may use such personnel detailed*
8 *from Federal agencies as may be necessary to enable it to*
9 *perform its functions.*

10 “(5) *Nine members of the Committee shall constitute*
11 *a quorum for the transaction of business.*

12 “(6) *Members of the Committee, other than full-time*
13 *employees of the Federal Government, while attending meet-*
14 *ings of the Committee or otherwise performing duties of the*
15 *Committee while away from their homes or regular places*
16 *of business, shall be allowed travel expenses in accordance*
17 *with subchapter I of chapter 57 of title 5, United States*
18 *Code.*

19 “(7) *The Committee shall submit a report of its activi-*
20 *ties once every year after its establishment to the President,*
21 *the Committee on Commerce, Science, and Transportation*
22 *of the Senate, and the Committee on Science, Space, and*
23 *Technology of the House of Representatives.*

24 “(8) *The Committee, as appropriate, shall work with*
25 *the Commerce Technology Advisory Board established under*

1 *section 113 of this Act and with other appropriate Federal*
 2 *advisory mechanisms to ensure integrated Federal-private*
 3 *consideration of technology and manufacturing policies and*
 4 *programs.*

5 “(d) *AUTHORIZATION OF APPROPRIATIONS.—There*
 6 *are authorized to be appropriated to carry out this section*
 7 *such sums as may be necessary for the fiscal years 1994*
 8 *and 1995.’’.*

9 **SEC. 213. MISCELLANEOUS AND CONFORMING AMEND-**
 10 **MENTS.**

11 (a) *DEFINITIONS.—Section 4 of the Stevenson-Wydler*
 12 *Technology Innovation Act of 1980 (15 U.S.C. 3703) is*
 13 *amended by adding at the end of the following new para-*
 14 *graphs:*

15 “(14) ‘Director’ means the Director of the Na-
 16 tional Institute of Standards and Technology.

17 “(15) ‘Institute’ means the National Institute of
 18 Standards and Technology.

19 “(16) ‘Assistant Secretary’ means the Assistant
 20 Secretary of Commerce for Technology Policy.

21 “(17) ‘Advanced manufacturing technology’ in-
 22 cludes—

23 “(A) *numerically-controlled machine tools,*
 24 *robots, automated process control equipment,*
 25 *computerized flexible manufacturing systems, as-*

1 *sociated computer software, and other technology*
 2 *for improving manufacturing and industrial*
 3 *production which advance the state-of-the-art;*
 4 *and*

5 *“(B) novel techniques and work organiza-*
 6 *tion processes designed to improve manufactur-*
 7 *ing quality, productivity, and practices, and to*
 8 *promote sustainable development, including engi-*
 9 *neering design, quality assurance, concurrent en-*
 10 *gineering, continuous process production tech-*
 11 *nology, energy efficiency, waste minimization,*
 12 *design for recyclability or parts reuse, inventory*
 13 *management, upgraded worker skills, and com-*
 14 *munications with customers and suppliers.*

15 *“(18) ‘Modern technology’ means the best avail-*
 16 *able proven technology, techniques, and processes ap-*
 17 *propriate to enhancing the productivity of manufac-*
 18 *turers.”.*

19 *(b) REDESIGNATIONS.—The Stevenson-Wydler Tech-*
 20 *nology Innovation Act of 1980 (15 U.S.C. 3701 et seq.) is*
 21 *amended—*

22 *(1) by inserting immediately after section 4 the*
 23 *following new title heading:*

1 **“TITLE I—DEPARTMENT OF COM-**
 2 **MERCE AND RELATED PRO-**
 3 **GRAMS”;**

4 (2) by redesignating sections 5 through 10 as sec-
 5 tions 101 through 106, respectively;

6 (3) by striking section 21;

7 (4) by redesignating sections 16, 17, 18, 19, 20,
 8 and 22, as sections 107 through 112, respectively;

9 (5) by inserting immediately after section 113
 10 (as redesignated by paragraph (4) of this subsection)
 11 the following new title heading:

12 **“TITLE II—FEDERAL**
 13 **TECHNOLOGY TRANSFER”;**

14 (6) by redesignating sections 11 through 15 as
 15 sections 201 through 205, respectively;

16 (7) by redesignating section 23 as section 206;

17 (8) in section 4—

18 (A) by striking “section 5” and inserting in
 19 lieu thereof “section 101”; and by striking “sec-
 20 tion 5(b)(1)” and inserting in lieu thereof “sec-
 21 tion 101(b)(1)”;

22 (B) in paragraphs (4) and (6), by striking
 23 “section 6” and “section 8” each place they ap-
 24 pear and inserting in lieu thereof “section 102”
 25 and “section 104”, respectively; and

1 (C) in paragraph (13), by striking “section
2 6” and inserting in lieu thereof “section 102”;

3 (9) in section 105 (as redesignated by paragraph
4 (2) of this subsection) by striking “section 6(a)” and
5 inserting in lieu thereof “section 102(a)”; by striking
6 “section 6(b)” and inserting in lieu thereof “section
7 102(b)”; and by striking “section 6(c)(3)” and insert-
8 ing in lieu thereof “section 102(c)(3)”;

9 (10) in section 106(d) (as redesignated by para-
10 graph (2) of this subsection) by striking “7, 9, 11, 15,
11 17, or 20” and inserting in lieu thereof “103, 105,
12 108, 111, 201, or 205”;

13 (11) in section 201(i) (as redesignated by para-
14 graph (6) of this subsection)—

15 (A) by inserting “loan, lease, or” imme-
16 diately after “may”; and

17 (B) by inserting “Actions taken under this
18 subsection shall not be subject to Federal require-
19 ments on the disposal of property.” immediately
20 after “activities.”;

21 (12) in section 202(b) (as redesignated by para-
22 graph (6) of this subsection) by striking “section
23 14(a)(1)(B) (i), (ii), and (iv)” and inserting in lieu
24 thereof “section 204(a)(1)(B) (i), (ii), and (iv)”;

1 (13) in section 204(a)(1) (as redesignated by
2 paragraph (6) of this subsection) by striking “section
3 12” and inserting in lieu thereof “section 202”;

4 (14) in section 112 (as redesignated by para-
5 graph (4) of this subsection) by striking “sections 11,
6 12, and 13” and inserting in lieu thereof “sections
7 201, 202, and 203”;

8 (15) in section 206 (as redesignated by para-
9 graph (7) of this subsection)—

10 (A) by striking “section 12(d)(2)” in the in-
11 troductory matter of subsection (a) and inserting
12 in lieu thereof “section 202(d)(2)”;

13 (B) by striking “section 11(b)” in sub-
14 section (a)(2) and inserting in lieu thereof “sec-
15 tion 201(b)”;

16 (C) by striking “section 6(d)” in subsection
17 (b) and inserting in lieu thereof “section
18 102(d)”;

19 (16) by adding at the end of section 201 (as re-
20 designated by paragraph (5) of this subsection) the
21 following new subsection:

22 “(j) *ADDITIONAL TECHNOLOGY TRANSFER MECHA-*
23 *NISMS.*—In addition to the technology transfer mechanisms
24 set forth in this section and section 202, the heads of Federal
25 departments and agencies also may transfer technologies

1 *through the technology transfer, extension, and deployment*
 2 *programs of the Department of Commerce and the Depart-*
 3 *ment of Defense.”; and*

4 *(17) in section 101(c) (as redesignated by para-*
 5 *graph (2) of this subsection), by striking “and” at the*
 6 *end of paragraph (14); by striking the period at the*
 7 *end of paragraph (15) and inserting “; and”; and by*
 8 *adding at the end the following new paragraph:*

9 *“(16) engage in joint projects with any person or*
 10 *persons on matters within the authority of the De-*
 11 *partment of Commerce, accept ‘partnership fellows’*
 12 *and receive cash donations in the course of such joint*
 13 *projects, and in conjunction with the planning and*
 14 *operation of such joint projects hold meetings of mat-*
 15 *ters of mutual interest with groups of interested per-*
 16 *sons without regard to any other provision of law, in*
 17 *order to protect sensitive information about United*
 18 *States industry and to assure industry participation*
 19 *in such joint projects.”.*

20 **SEC. 214. MANUFACTURING TECHNOLOGY CENTERS.**

21 *(a) AMENDMENTS.—(1) Section 25(a) of the National*
 22 *Institute of Standards and Technology Act (15 U.S.C.*
 23 *278k(a)) is amended by striking “and” at the end of para-*
 24 *graph (4), by striking the period at the end of paragraph*
 25 *(5) and inserting in lieu thereof a semicolon, and by insert-*

1 *ing immediately after paragraph (5) the following new*
 2 *paragraphs:*

3 “(6) *the active dissemination of information on*
 4 *advanced workplace practices and available education*
 5 *and training programs, and the encouragement of*
 6 *companies to train workers in the effective use of*
 7 *modern and advanced manufacturing technologies;*
 8 *and*

9 “(7) *demonstration projects in which Centers*
 10 *work with States, local governments, community de-*
 11 *velopment organizations, worker and business organi-*
 12 *zations, and community banks to create a business*
 13 *climate supportive of high-performance manufactur-*
 14 *ing.”.*

15 (2) *Section 25(b) of the National Institute of Stand-*
 16 *ards and Technology Act (15 U.S.C. 278k(b)) is amended*
 17 *by striking “and” at the end of paragraph (2), by redesign-*
 18 *ating paragraph (3) as paragraph (4), and by inserting*
 19 *immediately after paragraph (2) the following new para-*
 20 *graph:*

21 “(3) *assessments of client firms’ modernization*
 22 *needs, assistance in implementing quality processes,*
 23 *and, where needed, cooperation with training institu-*
 24 *tions to ensure that employees, particularly produc-*
 25 *tion workers, receive training in the most effective use*

1 *of manufacturing technology and advanced workplace*
2 *practices; and”.*

3 *(3) Section 25(c)(5) of the National Institute of Stand-*
4 *ards and Technology Act (15 U.S.C. 278k(c)(15)) is amend-*
5 *ed by striking “which are designed” and all that follows*
6 *through the period at the end and inserting in lieu thereof*
7 *“to a maximum of one-third Federal funding. Each Center*
8 *which receives financial assistance under this section shall*
9 *be evaluated during its sixth year of operation, and at such*
10 *subsequent times as the Secretary considers appropriate, by*
11 *an evaluation panel appointed by the Secretary in the same*
12 *manner as was the evaluation panel previously appointed.*
13 *The Secretary shall not provide funding for additional*
14 *years of the Center’s operation unless the evaluation is posi-*
15 *tive and the Secretary finds that continuation of funding*
16 *furtheres the goals of the Department. Such additional Fed-*
17 *eral funding shall not exceed one-third of the cost of the*
18 *Center’s operations.”.*

19 *(4) Section 25 of the National Institute of Standards*
20 *and Technology Act (15 U.S.C. 278k et seq.) is amended*
21 *by adding at the end the following new subsection:*

22 *“(e) If a Center receives a positive evaluation during*
23 *its third year of operation, the Director may, any time after*
24 *that evaluation, contract with the Center to provide addi-*
25 *tional technology extension or transfer services above and*

1 *beyond the baseline activities of the Center. Such additional*
2 *services may include, but are not necessarily limited to, the*
3 *development and operation of the following:*

4 “(1) *Services focused on the testing, development,*
5 *and application of manufacturing and process tech-*
6 *nologies within specific technical fields such as ad-*
7 *vanced materials or electronics fabrication for the*
8 *purpose of assisting United States companies, both*
9 *within the Center’s original service region and in*
10 *other regions, to improve manufacturing, product de-*
11 *sign, workforce training, and production in those spe-*
12 *cific technical fields.*

13 “(2) *Assistance to small- and medium-sized*
14 *firms in fields of manufacturing other than the field*
15 *or fields originally served by the Center.*

16 “(3) *Industrial service facilities which provide*
17 *tools to help companies with the low-cost, low-volume,*
18 *rapid prototyping of a range of new products and the*
19 *refinement of the manufacturing and process tech-*
20 *nologies necessary to make such products.*

21 “(4) *Programs to assist small- and medium-sized*
22 *manufacturers and their employees, particularly pro-*
23 *duction workers, in the Center’s region to learn and*
24 *apply the technologies, techniques, and processes asso-*
25 *ciated with systems management technology, elec-*

1 *tronic commerce, pollution minimization, or the im-*
 2 *provement of manufacturing productivity.*

3 *“(5) Industry-led demonstration programs that*
 4 *explore the value of innovative nonprofit manufactur-*
 5 *ing technology consortia to provide ongoing research,*
 6 *technology transfer, and worker training assistance*
 7 *for industrial members. An award under this para-*
 8 *graph shall be for no more than \$500,000 per year,*
 9 *and shall be subject to renewal after a 1-year dem-*
 10 *onstration period.”.*

11 *(b) EFFECTIVE DATE.—The effective date of section*
 12 *25(c)(5) of the National Institute of Standards and Tech-*
 13 *nology Act, as amended by subsection (a) of this section,*
 14 *is August 23, 1988.*

15 **SEC. 215. STATE TECHNOLOGY EXTENSION PROGRAM.**

16 *(a) ESTABLISHMENT.—Section 26(a) of the National*
 17 *Institute of Standards and Technology Act (15 U.S.C.*
 18 *2781(a)) is amended—*

19 *(1) by inserting immediately after “(a)” the fol-*
 20 *lowing new sentence: “There is established within the*
 21 *Institute a State Technology Extension Program.”;*
 22 *and*

23 *(2) by inserting “through that Program” imme-*
 24 *diately after “technical assistance”.*

1 (b) *ASSISTANCE PROVIDED BY PROGRAM.—Section 26*
2 *of the National Institute of Standards and Technology Act*
3 *(15 U.S.C. 278l) is amended by adding at the end the fol-*
4 *lowing new subsection:*

5 “(c) *In addition to the general authorities listed in*
6 *subsection (b), the State Technology Extension Program*
7 *also shall, through merit-based competitive review processes*
8 *and as authorizations and appropriations permit—*

9 “(1) *make awards to States and conduct work-*
10 *shops, pursuant to section 5121(b) of the Omnibus*
11 *Trade and Competitiveness Act of 1988 (15 U.S.C.*
12 *278l note) in order to help States improve their plan-*
13 *ning and coordination of technology extension activi-*
14 *ties;*

15 “(2) *assist States, particularly States which his-*
16 *torically have had no manufacturing or technology*
17 *extension programs or only small programs, to plan,*
18 *develop, and coordinate such programs and to help*
19 *bring those State programs to a level of performance*
20 *where they can apply successfully for awards to estab-*
21 *lish Manufacturing Outreach Centers, Regional Cen-*
22 *ters for the Transfer of Manufacturing Technology, or*
23 *both;*

24 “(3) *support industrial modernization dem-*
25 *onstration projects to help States create networks*

1 *among small manufacturers for the purpose of facili-*
2 *tating technical assistance, group services, and im-*
3 *proved productivity and competitiveness;*

4 *“(4) support State efforts to develop and test in-*
5 *novative ways to help small- and medium-sized man-*
6 *ufacturers improve their technical capabilities, in-*
7 *cluding, as appropriate, State contracts with private-*
8 *sector technology transfer companies to provide tech-*
9 *nology assistance and development services that are*
10 *beyond the current capacity of a given State’s indus-*
11 *trial extension activities;*

12 *“(5) support State efforts designed to help small*
13 *manufacturers in rural as well as urban areas im-*
14 *prove and modernize their technical capabilities, in-*
15 *cluding, as appropriate, interstate efforts to achieve*
16 *such end;*

17 *“(6) support State efforts to assist interested*
18 *small defense manufacturing firms to convert their*
19 *production to nondefense or dual-use purposes;*

20 *“(7) support worker technology education pro-*
21 *grams in the States at institutions such as research*
22 *universities, community colleges, technical and profes-*
23 *sional societies, labor education centers, labor-man-*
24 *agement committees, and worker organizations in*
25 *production technologies critical to the Nation’s future,*

1 *with an emphasis on high-performance work systems,*
2 *the skills necessary to use advanced manufacturing*
3 *system well, and best production practice; and sup-*
4 *port on-the-job training programs in the States to*
5 *build and enhance the skills of employees, particu-*
6 *larly production workers, in small- and medium-sized*
7 *companies; and*

8 *“(8) help States develop programs to train per-*
9 *sonnel who in turn can provide technical skills to*
10 *managers and workers of manufacturing firms.”.*

11 **SEC. 216. AMERICAN WORKFORCE QUALITY.**

12 *(a) WORKFORCE ACTIVITIES.—In addition to existing*
13 *responsibilities and authorities prescribed by law, the Sec-*
14 *retary, through the Director and after consultation with the*
15 *Secretary of Labor, shall direct Regional Centers for the*
16 *Transfer of Manufacturing Technology and Manufacturing*
17 *Outreach Centers to utilize, when appropriate, their exper-*
18 *tise and capability to assist managers and workers in Unit-*
19 *ed States manufacturing firms in effectively utilizing and*
20 *operating advanced manufacturing technologies and mod-*
21 *ern technologies—*

22 *(1) by making available assessments of the needs*
23 *of United States manufacturing firms for worker*
24 *training in the effective utilization and operation of*

1 *specific technologies the firms have adopted or are*
2 *planning to adopt;*

3 (2) *by making available to United States manu-*
4 *facturing firms information on commercially and*
5 *publicly provided worker training services, including*
6 *those provided by United States sources of tech-*
7 *nologies, in the effective utilization and operation of*
8 *specific technologies the firms have adopted or are*
9 *planning to adopt; and*

10 (3) *by providing information to client firms and*
11 *their workers to enable them effectively to utilize and*
12 *operate specific technologies that the firms have*
13 *adopted or plan to adopt.*

14 (b) *WORKFORCE ANALYSIS AND INFORMATION DIS-*
15 *SEMINATION.—In addition to existing responsibilities and*
16 *authorities prescribed by law, the Secretary, through the Di-*
17 *rector and in consultation with the Secretary of Labor and*
18 *other appropriate Federal officials and with leaders of in-*
19 *dustry and labor, shall assist managers and other workers*
20 *in United States manufacturing firms in effectively utiliz-*
21 *ing and operating advanced manufacturing technologies*
22 *and modern technologies—*

23 (1) *by establishing and managing a clearing-*
24 *house for information, to be available through an ap-*
25 *propriate entity to the Regional Centers for the*

1 *Transfer of Manufacturing Technology, to the Manu-*
2 *facturing Outreach Centers when they are established,*
3 *to other technology training entities, or directly to*
4 *United States manufacturing firms, on the best avail-*
5 *able training material and services for the effective*
6 *utilization and operation of specific advanced and*
7 *modern technologies;*

8 *(2) by encouraging United States providers of*
9 *advanced and modern technologies for manufacturing*
10 *firms to develop training material specifically de-*
11 *signed for the managers and other workers responsible*
12 *for utilizing and operating such technologies; and*

13 *(3) by establishing as an important criterion in*
14 *the assessment of advanced and modern technologies*
15 *the availability of training material specifically de-*
16 *signed for the managers and other workers responsible*
17 *for utilizing and operating such technologies.*

18 **SEC. 217. REPORT ON OPTIONS FOR ACCELERATING THE**
19 **ADOPTION OF NEW MANUFACTURING EQUIP-**
20 **MENT.**

21 *Within 1 year after the date of enactment of this Act,*
22 *the Secretary shall submit to Congress a report on—*

23 *(1) the degree to which manufacturing enter-*
24 *prises in the United States have difficulty obtaining*

1 *financing for the purpose of purchasing new equip-*
2 *ment and modernizing operations;*

3 *(2) the policies and practices followed in other*
4 *industrialized countries to help manufacturing firms*
5 *obtain financing for modernization; and*

6 *(3) the advantages, disadvantages, and costs of*
7 *major options by which the Federal Government*
8 *might help stimulate the flow of capital to manufac-*
9 *turers and thus accelerate industrial modernization,*
10 *including—*

11 *(A) creation of a Government-sponsored en-*
12 *terprise to stimulate the flow of capital to manu-*
13 *facturing;*

14 *(B) increasing technical advice to banks*
15 *and other financial institutions, perhaps through*
16 *the National Manufacturing Outreach Program,*
17 *in order to increase their ability to judge wheth-*
18 *er or not individual manufacturers have sound*
19 *modernization plans;*

20 *(C) cooperation between extension activities*
21 *supported under the Manufacturing Extension*
22 *Partnership and manufacturing equipment leas-*
23 *ing firms in order to provide manufacturers*
24 *with additional information or equipment leas-*
25 *ing options; and*

1 (D) tax incentives.

2 ***Subtitle B—National Science Foun-***
 3 ***dation Manufacturing Programs***

4 ***SEC. 221. NATIONAL SCIENCE FOUNDATION MANUFACTUR-***
 5 ***ING ACTIVITIES.***

6 (a) *IN GENERAL.*—The Director of the National
 7 Science Foundation, after, as appropriate, consultation
 8 with the Secretary, the Under Secretary, and the Director,
 9 shall—

10 (1) *work with United States industry to identify*
 11 *areas of research in manufacturing technologies and*
 12 *practices that offer the potential to improve United*
 13 *States productivity, competitiveness, and employ-*
 14 *ment;*

15 (2) *support research at United States univer-*
 16 *sities to improve manufacturing technologies and*
 17 *practices; and*

18 (3) *work with the Technology Administration of*
 19 *the Department of Commerce and the Institute and,*
 20 *as appropriate, other Federal agencies to accelerate*
 21 *the transfer to United States industry of manufactur-*
 22 *ing research and innovations developed at univer-*
 23 *sities.*

24 (b) *ENGINEERING RESEARCH CENTERS AND INDUS-*
 25 *TRY/UNIVERSITY COOPERATIVE RESEARCH CENTERS.*—The

1 *Director of the National Science Foundation shall strength-*
2 *en and expand the number of Engineering Research Centers*
3 *and strengthen and expand the Industry/University Cooper-*
4 *ative Research Centers Program with the goals of increasing*
5 *the engineering talent base versed in technologies and work-*
6 *place practices critical to the Nation's future, with empha-*
7 *sis on advanced manufacturing, and of advancing fun-*
8 *damental engineering knowledge in these technologies. At*
9 *least one Engineering Research Center shall have a research*
10 *and education focus on the concerns of traditional manufac-*
11 *turers, including small- and medium-sized firms that are*
12 *trying to modernize their operations. Awards under this*
13 *subsection shall be made on a competitive, merit review*
14 *basis. Such awards may include support for acquisition of*
15 *instrumentation, equipment, and facilities related to the re-*
16 *search and education activities of the Centers and support*
17 *for undergraduate students to participate in the activities*
18 *of the Centers.*

19 (c) *GRADUATE TRAINEESHIPS.*—*The Director of the*
20 *National Science Foundation, in consultation with the Sec-*
21 *retary, may establish a program to provide traineeships to*
22 *graduate students at institutions of higher education within*
23 *the United States who choose to pursue masters or doctoral*
24 *degrees in manufacturing or industrial engineering.*

1 (d) *MANUFACTURING MANAGERS IN THE CLASSROOM*
 2 *PROGRAM.*—*The Director of the National Science Founda-*
 3 *tion, in consultation with the Secretary, may establish a*
 4 *program to provide fellowships, on a cost-shared basis, to*
 5 *individuals from industry with experience in manufactur-*
 6 *ing to serve for 1 or 2 years as instructors in manufactur-*
 7 *ing at 2-year community and technical colleges in the Unit-*
 8 *ed States. In selecting fellows, the Director of the National*
 9 *Science Foundation shall place special emphasis on sup-*
 10 *porting individuals who not only have expertise and prac-*
 11 *tical experience in manufacturing but who also will work*
 12 *to foster cooperation between 2-year colleges and nearby*
 13 *manufacturing firms.*

14 (e) *PROGRAMS TO TEACH TOTAL QUALITY MANAGE-*
 15 *MENT.*—*The Director of the National Science Foundation,*
 16 *in consultation with the Secretary, the Under Secretary,*
 17 *and the Director, may establish a program to develop inno-*
 18 *vative curricula, courses, and materials for use by institu-*
 19 *tions of higher education for instruction in total quality*
 20 *management and related management practices, in order*
 21 *to help improve the productivity of United States industry.*

22 **TITLE III—CRITICAL**
 23 **TECHNOLOGIES**

24 **SEC. 301. FINDINGS.**

25 *The Congress finds that—*

1 (1) the rapid, effective use of advanced tech-
2 nologies in the design and production of products is
3 a key determinant of economic competitiveness;

4 (2) investment in the development and adoption
5 of advanced technology contributes significantly to
6 long-term economic growth and employment;

7 (3) the governments of our most successful com-
8 petitor nations in the global marketplace have created
9 supportive structures and programs that have been ef-
10 fective in helping their domestic industries increase
11 their global market shares;

12 (4) agriculture and aerospace are two examples
13 of industries that have achieved commercial success
14 with strong support from the United States Govern-
15 ment; and

16 (5) the United States Government must promote
17 and facilitate the creation, development, and adoption
18 of advanced technologies, including skills-based pro-
19 duction technologies, to ensure long-term economic
20 prosperity for the United States.

21 **SEC. 302. DEVELOPMENT OF PLAN FOR THE ADVANCED**
22 **TECHNOLOGY PROGRAM.**

23 The Secretary, acting through the Under Secretary
24 and the Director, shall, within 6 months after the date of
25 enactment of this Act, submit to Congress a plan for the

1 *expansion of the Advanced Technology Program established*
2 *under section 28 of the National Institute of Standards and*
3 *Technology Act (15 U.S.C. 278n), with specific consider-*
4 *ation given to—*

5 (1) *closer coordination and cooperation with the*
6 *Advanced Research Projects Agency and other Federal*
7 *research and development agencies as appropriate;*

8 (2) *establishment of temporary staff positions*
9 *that can be filled by industrial or technical experts*
10 *for a period of 1 to 2 years;*

11 (3) *ensuring that the Program will have a mean-*
12 *ingful impact on the commercialization of a broad*
13 *range of new technologies and on the refinement of*
14 *critical manufacturing technologies;*

15 (4) *changes that may be needed when annual*
16 *funds available for grants under the Program reach*
17 *levels of \$200,000,000 and \$500,000,000; and*

18 (5) *administrative steps necessary for Program*
19 *support of large-scale industry-led consortia similar*
20 *to, or possibly eventually including, the Semiconduc-*
21 *tor Manufacturing Technology Institute.*

1 **SEC. 303. ADVANCED TECHNOLOGY PROGRAM SUPPORT OF**
2 **LARGE-SCALE JOINT VENTURES.**

3 *Section 28 of the National Institute of Standards and*
4 *Technology Act (15 U.S.C. 278n) is amended by adding at*
5 *the end the following new subsection:*

6 “(k) *In addition to the general authority under this*
7 *section to provide financial assistance to joint ventures, the*
8 *Secretary, through the Director, also may, as permitted by*
9 *levels of authorizations and appropriations, provide finan-*
10 *cial support to large-scale joint ventures requesting \$20 mil-*
11 *lion or more a year in Department funds. Any such support*
12 *shall be subject to the matching funds requirements of sub-*
13 *section (b)(1)(B)(ii), except that the Secretary may provide*
14 *assistance to such large-scale joint ventures for up to 7*
15 *years. The Secretary may work with industrial groups to*
16 *develop such proposed large-scale joint ventures and shall*
17 *give preference to proposals which represent a broad spec-*
18 *trum of companies for a given industry and which focus*
19 *either on speeding the commercialization of important new*
20 *technologies or on accelerating the development, testing, and*
21 *deployment of valuable new process technologies and work-*
22 *place practices. The Secretary and Director, as appropriate,*
23 *shall obtain independent technical review of industry pro-*
24 *posals submitted under this subsection.”*

1 **SEC. 304. TECHNICAL AMENDMENTS.**

2 (a) *AMENDMENTS TO NATIONAL INSTITUTE OF STAND-*
3 *ARDS AND TECHNOLOGY ACT.*—Section 28 of the National
4 *Institute of Standards and Technology Act* (15 U.S.C.
5 278n), as amended by section 303 of this Act, is further
6 amended—

7 (1) in subsection (b)—

8 (A) in paragraph (1)(B), by striking “or
9 contracts” and inserting in lieu thereof “con-
10 tracts, and other transactions”;

11 (B) in paragraph (1)(B)(ii), by striking
12 “provision of a minority share of the cost of such
13 joint ventures for up to 5 years” and inserting
14 in lieu thereof “the option of providing either a
15 minority share of the total cost of such joint ven-
16 tures for up to 5 years, or only direct costs (and
17 not indirect costs, profits, or management fees),
18 for up to 5 years”;

19 (C) in paragraph (2), by striking “and co-
20 operative agreements” and inserting in lieu
21 thereof “cooperative agreements, and other trans-
22 actions”;

23 (D) by striking “and” at the end of para-
24 graph (3);

1 (E) by striking the period at the end of
2 paragraph (4) and inserting in lieu thereof “;
3 and”; and

4 (F) by adding at the end the following new
5 paragraph:

6 “(5) use other transactions authority under this
7 subsection only when the Secretary, acting through
8 the Director, determines that standard contracts,
9 grants, or cooperative agreements are not feasible or
10 appropriate, and only when other transaction instru-
11 ments incorporate terms and conditions that reflect
12 the use of generally accepted commercial accounting
13 and auditing practices.”; and

14 (2) by adding at the end the following new sub-
15 sections:

16 “(l) Notwithstanding subsections (b)(1)(B)(ii) and
17 (d)(3), the Director may grant an extension of not to exceed
18 6 months beyond the deadlines established under those sub-
19 sections for joint venture and single applicant awardees to
20 expend Federal funds to complete their projects, if such ex-
21 tension may be granted with no additional cost to the
22 Federal Government.

23 “(m) The Secretary, Under Secretary, and Director
24 may organize or attend workshops or use other mechanisms

1 *to encourage the leaders of specific United States industrial*
 2 *sectors to—*

3 “(1) *identify which precompetitive, generic tech-*
 4 *nologies will be most critical in the future to each*
 5 *such sector and, as appropriate, encourage the forma-*
 6 *tion of broad-based industry-led joint ventures which*
 7 *seek to develop those technologies; and*

8 “(2) *analyze which additional steps may be nec-*
 9 *essary to enable each sector to acquire, deploy, and*
 10 *finance needed technologies in a timely fashion.”.*

11 (b) *AMENDMENT TO AMERICAN TECHNOLOGY PRE-*
 12 *EMINENCE ACT OF 1991.—Section 201(d) of the American*
 13 *Technology Preeminence Act of 1991 (Public Law 102–245;*
 14 *106 Stat. 19) is amended by inserting “, except in the case*
 15 *of the amendment made by subsection (c)(6)(A)” imme-*
 16 *diately after “enactment of this Act”.*

17 ***SEC. 305. TECHNOLOGY FINANCING PILOT PROGRAM.***

18 (a) *FINDINGS.—Congress finds and declares the follow-*
 19 *ing:*

20 (1) *In recent years, United States technology*
 21 *firms appear to have had increasing difficulty financ-*
 22 *ing the development and early-stage commercializa-*
 23 *tion of important new critical civilian technologies.*
 24 *Venture capital is less available than in past years,*
 25 *banks appear less willing to provide loans, and me-*

1 dium-sized as well as small companies often have dif-
 2 ficulty under current capital market conditions fi-
 3 nancing promising long-term technology projects.

4 (2) Difficulties in obtaining financing particu-
 5 larly hurts those technology firms which face foreign
 6 competitors which have received substantial direct or
 7 indirect financial help from their governments.

8 (3) The Nation would benefit from a technology
 9 financing pilot program to experiment with assisting
 10 private-sector venture capital entities which in turn
 11 can select and support the most promising and valu-
 12 able long-term United States technology projects.

13 (b) *IN GENERAL.*—(1) As a pilot program, the Sec-
 14 retary, through the Under Secretary and in consultation
 15 with the Administrator of the Small Business Administra-
 16 tion (hereafter in this section referred to as the “Adminis-
 17 trator”), may license and, to the extent provided in advance
 18 in appropriations Acts and in accordance with the plan
 19 developed under subsection (e), financially assist private-
 20 sector entities to be known as civilian technology investment
 21 companies, for the purpose of stimulating and expanding
 22 the flow of private capital to eligible technology firms and
 23 joint ventures of eligible technology firms.

24 (2)(A) Each civilian technology investment company
 25 licensed under this section may provide venture capital and

1 *loans to eligible technology firms and joint ventures in such*
2 *manner and under such terms as the licensee may fix in*
3 *accordance with regulations of the Secretary. Civilian tech-*
4 *nology investment companies may provide venture capital*
5 *and loans directly or in cooperation with other investors.*

6 *(B) Each civilian technology investment company*
7 *shall have authority to borrow money and to issue its debenture*
8 *bonds, promissory notes, or other obligations under*
9 *such general conditions and subject to such limitations and*
10 *regulations as the Secretary may prescribe.*

11 *(3) In order to encourage the formation and growth*
12 *of civilian technology investment companies pursuant to*
13 *this section, the Secretary is authorized, when funds are*
14 *previously made available in appropriations Acts, to—*

15 *(A) purchase, or guarantee the timely payment*
16 *of up to 100 percent of principal and interest as*
17 *scheduled on, debentures issued by such companies, on*
18 *such terms and conditions as the Secretary deems ap-*
19 *propriate pursuant to regulations issued under sub-*
20 *section (e); and*

21 *(B) purchase nonparticipating or participating,*
22 *nonvoting preferred securities and issue trust certifi-*
23 *cates representing ownership of all or part of such*
24 *preferred securities.*

1 (4) *Guarantees and purchases of debentures and pre-*
2 *ferred securities under this subsection shall be made on such*
3 *terms and conditions as are necessary to ensure that the*
4 *cost of the program established under this section shall not*
5 *exceed 15 percent of its corresponding credit authority in*
6 *any fiscal year. For purposes of this paragraph, the term*
7 *“cost” shall have the same meaning given such term in sec-*
8 *tion 502(5) of the Federal Credit Reform Act of 1990, and*
9 *the term “credit authority” shall have the same meaning*
10 *given such term in section 3(10) of the Congressional Budg-*
11 *et Act of 1974.*

12 (c) *PURPOSES.—The Secretary shall require that any*
13 *civilian technology investment company licensed and as-*
14 *sisted under this section shall—*

15 (1) *focus primarily on providing patient early-*
16 *stage capital, either loans or equity investments, to el-*
17 *igible technology firms in the United States, includ-*
18 *ing joint ventures of eligible firms, in order to help*
19 *those firms finance and accelerate the development*
20 *and early-stage commercialization of critical civilian*
21 *technologies;*

22 (2) *support critical civilian technology projects,*
23 *particularly those undertaken by eligible technology*
24 *firms whose net worth is \$50,000,000 or less;*

1 (3) demonstrate to the Secretary credible proce-
2 dures for ensuring that investments are made in criti-
3 cal technology projects for which eligible firms cannot
4 obtain necessary financing solely through commercial
5 capital markets; and

6 (4) demonstrate to the Secretary working rela-
7 tionships with either the Institute, universities, re-
8 search bodies, technology transfer centers, or other or-
9 ganizations that can assist such licensee to identify
10 and evaluate projects to be supported under this
11 section.

12 (d) *PAYMENTS.*—Amounts received by the Secretary
13 from the payment of dividends, any profit allocation, and
14 the redemption of securities pursuant to this section, and
15 fees paid to the United States by a civilian technology in-
16 vestment company licensed pursuant to this section, shall
17 be deposited in an account established by the Secretary and
18 shall be available solely for carrying out this section, to the
19 extent provided in advance in appropriations Acts.

20 (e) *OPERATING PLAN; EFFECTIVE DATE; AND EVALUA-*
21 *TION.*—(1) The Secretary, acting through the Under Sec-
22 retary and in coordination with the Administrator, and in
23 consultation with other appropriate Federal officials, the
24 States, industry, the financial community, and other ap-
25 propriate parties, shall prepare and submit to Congress on

1 or before January 1, 1994, an operating plan to carry out
2 this section. In preparing such plan, the Secretary shall
3 consider and evaluate approaches to achieving the purposes
4 of this section and shall develop recommendations, as ap-
5 propriate, to fulfill this section's objective to help technology
6 firms in the United States to develop and commercialize
7 critical civilian technologies. Such evaluations and rec-
8 ommendations shall be included in the plan submitted to
9 Congress under this subsection.

10 (2) The Secretary, in consultation with the Adminis-
11 trator, shall promulgate such regulations as may be nec-
12 essary to carry out the provisions of this section and may
13 contract with other agencies for administrative services to
14 help carry out this section.

15 (3) Except for the requirement set forth in paragraph
16 (1), the provisions of this section shall not take effect until
17 October 1, 1994.

18 (4) After appropriations are provided for the pilot
19 project authorized under this section, the Secretary, after
20 consultation with the Administrator, shall evaluate annu-
21 ally the effectiveness of the program and submit an annual
22 report to appropriate committees of Congress on the find-
23 ings resulting from such evaluation. Such report shall con-
24 tain, on a confidential basis, appendices which include, but
25 are not necessarily limited to, the type and amount of as-

1 *sistance provided to licensees under this section, key charac-*
2 *teristics of licensees, the number and size in net worth of*
3 *the technology firms and joint ventures assisted by each li-*
4 *censee, the amount of assistance provided to each technology*
5 *firm or joint venture, and the types of technology each such*
6 *technology firm or joint venture is developing and*
7 *commercializing.*

8 *(f) DEFINITIONS.—As used in this section, the term—*

9 *(1) “critical civilian technology” means a tech-*
10 *nology not exclusively military which is identified in*
11 *one or more of the biennial national critical tech-*
12 *nologies reports required under section 603 of the Na-*
13 *tional Science and Technology Policy, Organization,*
14 *and Priorities Act of 1976 (42 U.S.C. 6683); and*

15 *(2) “eligible technology firm” means a com-*
16 *pany—*

17 *(A) which meets the requirements of section*
18 *28(d)(9) of the National Institute of Standards*
19 *and Technology Act (15 U.S.C. 278n(d)(9)); and*

20 *(B) whose principal business is the develop-*
21 *ment of products and services based on critical*
22 *civilian technologies.*

1 **SEC. 306. TECHNOLOGY MONITORING AND COMPETITIVE-**
2 **NESS ASSESSMENT.**

3 *Section 101(e) of the Stevenson-Wydler Technology In-*
4 *novation Act of 1980, as redesignated by section 213(b)(2)*
5 *of this Act, is amended to read as follows:*

6 “(e) OFFICE OF TECHNOLOGY MONITORING AND COM-
7 PETITIVENESS ASSESSMENT.—(1) *The Secretary, through*
8 *the Under Secretary, shall establish within the Technology*
9 *Administration an Office of Technology Monitoring and*
10 *Competitiveness Assessment, to collect, evaluate, assess, and*
11 *disseminate information on—*

12 “(A) *foreign science and technology, specifically*
13 *information assessing foreign capabilities relative to*
14 *the United States;*

15 “(B) *policies and programs used by foreign gov-*
16 *ernments and industries to develop and apply eco-*
17 *nomically important critical technologies, how these*
18 *policies and programs compare with public and pri-*
19 *vate activities in the United States, and the effects*
20 *that these foreign policies and programs have on the*
21 *competitiveness of United States industry; and*

22 “(C) *the way in which the economic competitive-*
23 *ness of United States industry can be enhanced*
24 *through Federal programs, including Department of*
25 *Commerce programs, and evaluations of the effective-*
26 *ness of Federal technology programs in helping to*

1 *promote United States industrial competitiveness and*
2 *economic growth.*

3 “(2) *Based on the information gathered under para-*
4 *graph (1), the President, with the assistance of the Sec-*
5 *retary, shall submit to Congress an annual report on Unit-*
6 *ed States technology and competitiveness analyzing the con-*
7 *dition of United States technology relative to major trading*
8 *partners, key trends in foreign technology and competitive-*
9 *ness policies and targeting, and the degree to which Federal*
10 *programs are helping the United States to stay competitive*
11 *with other countries and create domestic employment*
12 *opportunities.*

13 “(3) *The Office of Technology Monitoring and Com-*
14 *petitiveness Assessment, in cooperation with the National*
15 *Technical Information Service, is authorized to—*

16 “(A) *act as a focal point within the Federal Gov-*
17 *ernment for the collection and dissemination, includ-*
18 *ing electronic dissemination, of information on for-*
19 *eign process and product technologies, including in-*
20 *formation collected under the Japanese Technical Lit-*
21 *erature Program;*

22 “(B) *work and, as appropriate, enter into coop-*
23 *erative arrangements with sector-specific industry*
24 *trade associations or consortia to define the informa-*
25 *tion desired by industry;*

1 “(C) compile and make available the extensive
2 foreign technology monitoring and assessment infor-
3 mation already collected and analyzed by the Federal
4 Government;

5 “(D) as appropriate, enter into controlled access
6 agreements with other Federal agencies to fill the in-
7 dustry’s information needs;

8 “(E) act as an electronic clearinghouse for this
9 information or otherwise provide for this function;

10 “(F) direct and fund the collection of additional
11 information;

12 “(G) direct and fund analysis of foreign research
13 and development activities, technical capabilities,
14 workplace practices, particularly in technical areas
15 where the United States is considered to be at par or
16 lagging foreign capabilities;

17 “(H) establish a program to identify technical
18 areas needing a full-scale technical evaluation, and
19 provide, on a cost-shared basis to private sector or
20 government-industry joint ventures, grants to conduct
21 the evaluation;

22 “(I) establish and administer a fellowship pro-
23 gram to support Technology Fellows in those coun-
24 tries that are major competitors of the United States
25 in critical technologies to collect and provide initial

1 *analysis of information on foreign science and tech-*
 2 *nology capabilities; and*

3 *“(J) work with the Department of State to place*
 4 *technical experts from the Institute and other Federal*
 5 *laboratories into United States embassies to serve as*
 6 *technology attaches and counselors.”.*

7 ***SEC. 307. COMMERCE TECHNOLOGY ADVISORY BOARD.***

8 *Title I of the Stevenson-Wydler Technology Innovation*
 9 *Act of 1980 (as amended by title II of this Act) is further*
 10 *amended by adding at the end the following new section:*

11 ***“SEC. 113. COMMERCE TECHNOLOGY ADVISORY BOARD.***

12 *“(a) ESTABLISHMENT.—There is established a Com-*
 13 *merce Technology Advisory Board (hereafter in this section*
 14 *referred to as the ‘Advisory Board’), the purpose of which*
 15 *is to advise the Secretary, Under Secretary, and Director*
 16 *regarding ways in which to—*

17 *“(1) promote the development and rapid appli-*
 18 *cation of advanced commercial technologies, including*
 19 *advanced manufacturing technologies such as skill-*
 20 *based production technologies;*

21 *“(2) strengthen the programs of the Technology*
 22 *Administration; and*

23 *“(3) generally improve the global competitiveness*
 24 *of industries within the United States.*

1 “(b) *COMPOSITION.*—*The Advisory Board shall be*
2 *composed of at least 17 members, appointed by the Under*
3 *Secretary from among individuals who, because of their ex-*
4 *perience and accomplishments in technology development,*
5 *business development, or finance are exceptionally qualified*
6 *to analyze and formulate policy that would improve the*
7 *global competitiveness of industries in the United States.*
8 *The Under Secretary shall designate one member to serve*
9 *as chairman. Membership of the Advisory Board shall be*
10 *composed of—*

11 “(1) *representatives of—*

12 “(A) *United States small businesses;*

13 “(B) *other United States businesses;*

14 “(C) *research universities and independent*
15 *research institutes;*

16 “(D) *State and local government agencies*
17 *involved in industrial extension;*

18 “(E) *national laboratories;*

19 “(F) *industrial, worker, and technical and*
20 *professional organizations; and*

21 “(G) *financial organizations; and*

22 “(2) *other individuals that possess important*
23 *sinsight to issues of national competitiveness.*

6 “(d) TRAVEL EXPENSES.—Members of the Advisory
7 Board, other than full-time employees of the United States,
8 shall be allowed travel expenses in accordance with sub-
9 chapter I of chapter 57 of title 5, United States Code, while
10 engaged in the business of the Advisory Board.

18 “(f) *TERMINATION.*—Section 14 of the Federal Advi-
19 sory Committee Act shall not apply to the Advisory
20 Board.”.

23 *Within 9 months after the date of enactment of this*
24 *Act, the Critical Technologies Institute (in this section re-*
25 *ferred to as the “Institute”) established under section 822*

1 *of the National Defense Authorization Act for Fiscal Year*
 2 *1991 (42 U.S.C. 6686) shall, after consultation with the pri-*
 3 *vate sector and appropriate officials from other Federal*
 4 *agencies, submit to the Committee on Commerce, Science,*
 5 *and Transportation of the Senate and the Committee on*
 6 *Science, Space, and Technology of the House of Representa-*
 7 *tives a report on advanced lithography technologies for the*
 8 *production of semiconductor devices. The report shall in-*
 9 *clude the Institute's evaluation of the likely technical and*
 10 *economic advantages and disadvantages of each such tech-*
 11 *nology, an analysis of current private and Government re-*
 12 *search to develop each such technology, and any rec-*
 13 *ommendations the Institute may have regarding future Fed-*
 14 *eral support for research and development in advanced li-*
 15 *thography. To the extent appropriate, the Institute shall*
 16 *draw upon technical and business analyses of advanced li-*
 17 *thography technologies prepared by or for major trade asso-*
 18 *ciations and professional and technical societies.*

19 ***TITLE IV—ADDITIONAL COM-***
 20 ***MERCE DEPARTMENT PROVI-***
 21 ***SIONS***

22 ***SEC. 401. INTERNATIONAL STANDARDIZATION.***

23 *(a) FINDINGS.—Congress finds that—*

24 *(1) private sector consensus standards are essen-*
 25 *tial to the timely development of competitive products;*

1 (2) *Federal Government contributions of re-*
2 *sources and more active participation in the vol-*
3 *untary standards process in the United States can in-*
4 *crease the quality of United States standards, in-*
5 *crease their compatibility with the standards of other*
6 *countries, and, where appropriate, through govern-*
7 *ment-to-government negotiations, ease access of*
8 *United States-made products to foreign markets; and*

9 (3) *the Federal Government, working in coopera-*
10 *tion with private sector organizations including trade*
11 *associations, engineering societies, and technical bod-*
12 *ies, can effectively promote Federal Government use of*
13 *United States consensus standards and, where appro-*
14 *priate, the adoption and Federal Government use of*
15 *international standards.*

16 (b) *STANDARDS PILOT PROGRAM.*—*Section 104(e) of*
17 *the American Technology Preeminence Act of 1991 (Public*
18 *Law 102–245; 106 Stat. 10) is amended—*

19 (1) *by inserting “(1)” immediately before “Pur-*
20 *suant to the”;*

21 (2) *by striking “matching funds” and inserting*
22 *in lieu thereof “financial contributions deemed appro-*
23 *priate by the Secretary”; and*

24 (3) *by adding at the end the following new para-*
25 *graph:*

1 “(2) As necessary and appropriate, the Institute shall
2 expand the program established under section 112 of the
3 National Institute of Standards and Technology Authoriza-
4 tion Act for Fiscal Year 1989 (15 U.S.C. 272 note) by ex-
5 tending the existing program to include other countries that
6 prefer to discuss their standards-related activities with offi-
7 cial representatives of the Federal Government. The Insti-
8 tute may enter into additional contracts with non-Federal
9 organizations representing United States-owned companies,
10 as such term is defined in section 28(j)(2) of the National
11 Institute of Standards and Technology Act (15 U.S.C.
12 278n(j)(2)). Such contracts shall require cost sharing be-
13 tween Federal and non-Federal sources for such purposes.
14 In awarding such contracts, the Institute shall seek to pro-
15 mote and support the dissemination of United States tech-
16 nical standards to additional foreign countries and shall
17 seek, as the Director deems appropriate, to promote the
18 adoption of international standards supported by United
19 States industry. The Institute and such contractors shall,
20 in pursuing this mission, cooperate with governmental bod-
21 ies, private organizations including standards-setting orga-
22 nizations and industry, and multinational institutions that
23 promote economic development. The organizations receiving
24 such contracts may establish training programs to bring
25 to the United States foreign standards experts for the pur-

1 *pose of receiving in-depth training in the United States*
2 *standards system.”.*

3 (c) *REPORTS ON GLOBAL STANDARDS.—(1) Section*
4 *508(a) of the American Technology Preeminence Act of*
5 *1992 (15 U.S.C. 3701 note) is amended—*

6 (A) *by inserting “standards development and*
7 *international” immediately after “a thorough review*
8 *of international”;*

9 (B) *by redesignating paragraphs (1) through (5)*
10 *as paragraphs (2) through (6), respectively; and*

11 (C) *by inserting immediately before paragraph*
12 *(2), as so redesignated, the following new paragraph:*

13 “(1) *Current and potential future roles of the*
14 *Federal Government in the development and promul-*
15 *gation of domestic and global product and process*
16 *standards.”.*

17 (2) *The Secretary, in consultation with the Institute*
18 *and the Commerce Technology Advisory Board established*
19 *under section 113 of the Stevenson-Wydler Technology In-*
20 *novation Act of 1980 (as added by section 307 of this Act)*
21 *and with, as appropriate, the active participation of the*
22 *private sector, shall submit to Congress a report describing*
23 *the appropriate roles of the Department of Commerce in*
24 *aid to United States companies in qualifying their products*
25 *in foreign markets through the development and promulga-*

1 *tion of domestic and global product and quality standards*
 2 *and through the implementation of conformity assessment*
 3 *and accreditation procedures based upon such standards,*
 4 *including a discussion of the extent to which each of the*
 5 *policy options provided in the March 1992 Office of Tech-*
 6 *nology Assessment report on global standards, contributes*
 7 *to meeting the goals of—*

8 (A) *increasing the international adoption of*
 9 *standards beneficial to United States industries; and*

10 (B) *improving the coordination of United States*
 11 *representation at international standards-setting bod-*
 12 *ies.*

13 ***SEC. 402. MALCOLM BALDRIGE AWARD.***

14 (a) *CATEGORIES IN WHICH AWARD MAY BE GIVEN.—*

15 (1) *Section 108(c)(1) of the Stevenson-Wydler Technology*
 16 *Innovation Act of 1980, as so redesignated by section*
 17 *213(b)(3) of this Act, is amended by adding at the end the*
 18 *following new subparagraph:*

19 “(D) *Educational institutions.*”.

20 (2)(A) *Within 1 year after the date of enactment of*
 21 *this Act, the Secretary shall submit to Congress a report*
 22 *containing—*

23 (i) *criteria for qualification for a Malcolm*
 24 *Baldrige National Quality Award by various classes*
 25 *of educational institutions;*

1 (ii) criteria for the evaluation of applications for
2 each such award under section 108(d)(1) of the Ste-
3 venson-Wydler Technology Innovation Act of 1980, as
4 so redesignated; and

5 (iii) a plan for funding such awards.

6 (B) In preparing the report required under subpara-
7 graph (A), the Secretary shall consult with the National
8 Science Foundation and other public and private entities
9 with appropriate expertise, and shall provide for public no-
10 tice and comment.

11 (C) The Secretary shall not accept applications for
12 awards described in subparagraph (A)(i) until after the re-
13 port required under subparagraph (A) is submitted to
14 Congress.

15 (b) *RESTRICTION.*—Section 108(c)(3) of the Stevenson-
16 Wydler Technology Innovation Act of 1980, as so redesign-
17 ated, is amended to read as follows:

18 “(3) No award shall be made within any category or
19 subcategory if there are no qualifying enterprises in that
20 category or subcategory.”.

21 (c) *QUALITY LABORATORY.*—Section 108(g) of the Ste-
22 venson-Wydler Technology Innovation Act of 1980, as so
23 redesignated, is amended to read as follows:

24 “(g) *QUALITY LABORATORY.*—A National Quality
25 Laboratory is established within the Institute, the purpose

1 *of which is to perform research and outreach activities to*
 2 *assist private sector quality efforts and to serve as a mecha-*
 3 *nism by which United States companies, universities, and*
 4 *the Institute can work together to advance quality manage-*
 5 *ment programs and to share and, as appropriate, develop*
 6 *manufacturing best practices.”.*

7 **SEC. 403. COOPERATIVE RESEARCH AND DEVELOPMENT**
 8 **AGREEMENTS.**

9 *Section 202(d)(1) of the Stevenson-Wydler Technology*
 10 *Innovation Act of 1980, as so redesignated by section*
 11 *213(b)(6) of this Act, is amended by inserting “(including*
 12 *both real and personal property)” immediately after “or*
 13 *other resources” both places it appears.*

14 **SEC. 404. CLEARINGHOUSE ON STATE AND LOCAL INITIA-**
 15 **TIVES.**

16 *Section 102(a) of the Stevenson-Wydler Technology In-*
 17 *novation Act of 1980, as so redesignated by section*
 18 *213(b)(2) of this Act, is amended by striking “Office of Pro-*
 19 *ductivity, Technology, and Innovation” and inserting in*
 20 *lieu thereof “Institute”.*

21 **SEC. 405. USE OF DOMESTIC PRODUCTS.**

22 *(a) PROHIBITION AGAINST FRAUDULENT USE OF*
 23 *“MADE IN AMERICA” LABELS.—(1) A person shall not in-*
 24 *tentionally affix a label bearing the inscription of “Made*
 25 *in America”, or any inscription with that meaning, to any*

1 *product sold in or shipped to the United States, if that*
2 *product is not a domestic product.*

3 (2) *A person who violates paragraph (1) shall not be*
4 *eligible for any contract for a procurement carried out with*
5 *amounts authorized under this Act and the amendments*
6 *made by this Act, including any subcontract under such*
7 *a contract pursuant to the debarment, suspension, and in-*
8 *eligibility procedures in subpart 9.4 of chapter 1 of title*
9 *48, Code of Federal Regulations, or any successor proce-*
10 *dures thereto.*

11 (b) *COMPLIANCE WITH BUY AMERICAN ACT.—(1) Ex-*
12 *cept as provided in paragraph (2), the head of each agency*
13 *which conducts procurements shall ensure that such pro-*
14 *curements are conducted in compliance with sections 2*
15 *through 4 of the Act of March 3, 1933 (41 U.S.C. 10a*
16 *through 10c, popularly known as the “Buy American Act”).*

17 (2) *This subsection shall apply only to procurements*
18 *made for which—*

19 (A) *amounts are authorized by this Act, and the*
20 *amendments made by this Act, to be made available;*
21 *and*

22 (B) *solicitations for bids are issued after the date*
23 *of enactment of this Act.*

1 (3) *The Secretary, before January 1, 1994, shall report*
 2 *to Congress on procurements covered under this subsection*
 3 *of products that are not domestic products.*

4 (c) *DEFINITIONS.—For the purposes of this section, the*
 5 *term “domestic product” means a product—*

6 (1) *that is manufactured or produced in the*
 7 *United States; and*

8 (2) *at least 50 percent of the cost of the articles,*
 9 *materials, or supplies of which are mined, produced,*
 10 *or manufactured in the United States.*

11 **SEC. 406. SEVERABILITY.**

12 *If any provision of this Act, or the application thereof*
 13 *to any person or circumstance, is held invalid, the remain-*
 14 *der of this Act and the application thereof to other persons*
 15 *or circumstances shall not be affected thereby.*

16 **SEC. 407. WIND ENGINEERING RESEARCH PROGRAM.**

17 (a) *SHORT TITLE.—This section may be cited as the*
 18 *“Wind Engineering Program Act of 1993”.*

19 (b) *FINDINGS AND PURPOSES.—Congress finds and de-*
 20 *clares the following:*

21 (1) *Hurricanes and tornadoes kill more Ameri-*
 22 *cans and destroy more property than any other natu-*
 23 *ral disaster.*

24 (2) *Each year, in the United States, extreme*
 25 *winds cause billions of dollars of damage to homes,*

1 *schools, and other buildings, roads and bridges, elec-*
2 *trical power distribution networks, and communica-*
3 *tions networks.*

4 *(3) Research on wind and wind engineering has*
5 *resulted in improved methods for making buildings*
6 *and other structures less vulnerable to extreme winds,*
7 *but additional research funding is needed to develop*
8 *new, improved, and more cost-effective methods of*
9 *wind-resistant construction.*

10 *(4) Federal funding for wind engineering re-*
11 *search has decreased drastically over the last 20 years.*

12 *(5) Wind research has been hampered by a lack*
13 *of data on near-surface wind speed and distribution*
14 *during hurricanes, tornadoes, and other severe storms.*

15 *(6) Many existing methods for wind-resistant*
16 *construction are inexpensive and easy to implement*
17 *but often they are not applied because the construc-*
18 *tion industry and the general public are unaware of*
19 *such methods.*

20 *(7) Various Federal agencies have important*
21 *roles to play in wind engineering research, but at*
22 *present there is little interagency cooperation in this*
23 *area.*

24 *(8) Establishment of a Federal Wind Engineer-*
25 *ing Program would result in new technologies for*

1 *wind-resistant construction, broader application of*
2 *such technologies in construction, and ultimately de-*
3 *creased loss of life and property due to extreme winds.*

4 *(c) PURPOSE.—The purpose of this section is to create*
5 *a Wind Engineering Program within the National Institute*
6 *of Standards and Technology, which would—*

7 *(1) provide for wind engineering research;*

8 *(2) serve as a clearinghouse for information on*
9 *wind engineering; and*

10 *(3) improve interagency coordination on wind*
11 *engineering research between the National Institute of*
12 *Standards and Technology, the National Oceanic and*
13 *Atmospheric Administration, the National Science*
14 *Foundation, the Federal Aviation Administration,*
15 *and other appropriate agencies.*

16 *(d) ESTABLISHMENT.—Within the National Institute*
17 *of Standards and Technology, there shall be established a*
18 *Wind Engineering Program which shall—*

19 *(1) conduct research and development, in co-*
20 *operation with the private sector and academia, on*
21 *new methods for mitigating wind damage due to tor-*
22 *nadoes, hurricanes, and other severe storms;*

23 *(2) fund construction and maintenance of wind*
24 *tunnels and other research facilities needed for wind*
25 *engineering research;*

1 (3) *promote the application of existing methods*
2 *for, and research results on, reducing wind damage to*
3 *buildings that are usually incompletely- or non-engi-*
4 *neered, such as single family dwellings, mobile homes,*
5 *light industrial buildings, and small commercial*
6 *structures;*

7 (4) *transfer technology developed in wind engi-*
8 *neering research to the private sector so that it may*
9 *be applied in building codes, design practice, and*
10 *construction;*

11 (5) *conduct, in conjunction with the National*
12 *Oceanic and Atmospheric Administration, post-disas-*
13 *ter research following hurricanes, tornadoes, and other*
14 *severe storms to evaluate the vulnerability of different*
15 *types of buildings to extreme winds;*

16 (6) *serve as a point of contact for dissemination*
17 *of research information on wind engineering and*
18 *work with the private sector to develop education and*
19 *training programs on construction techniques, devel-*
20 *oped from research results, for reducing wind damage;*

21 (7) *work with the National Oceanic and Atmos-*
22 *pheric Administration, the Federal Aviation Admin-*
23 *istration, and other agencies as is appropriate, on*
24 *meteorology programs to collect and disseminate more*
25 *data on extreme wind events; and*

1 (8) work with the National Science Foundation
 2 to support and expand basic research on wind
 3 engineering.

4 ***TITLE V—AUTHORIZATIONS OF***
 5 ***APPROPRIATIONS***

6 ***SEC. 501. TECHNOLOGY ADMINISTRATION.***

7 (a) *AUTHORIZATION OF APPROPRIATIONS.*—There are
 8 authorized to be appropriated to the Secretary, to carry out
 9 the activities of the Under Secretary and the Assistant Sec-
 10 retary of Commerce for Technology Policy—

11 (1) for the Office of the Under Secretary,
 12 \$5,000,000 for fiscal year 1994 and \$8,000,000 for
 13 fiscal year 1995;

14 (2) for Technology Policy, \$5,000,000 for fiscal
 15 year 1994 and \$6,000,000 for fiscal years 1995;

16 (3) for Japanese Technical Literature,
 17 \$2,000,000 for fiscal year 1994 and \$3,000,000 for
 18 fiscal year 1995;

19 (4) for the Office of Technology Monitoring and
 20 Competitiveness Assessment, \$3,000,000 for fiscal year
 21 1994 and \$5,000,000 for fiscal year 1995.

22 (b) *TRANSFERS.*—(1) Funds may be transferred
 23 among the line items listed in subsection (a), so long as—

1 (A) the net funds transferred to or from any line
 2 item do not exceed 10 percent of the amount author-
 3 ized for that line item in such subsection;

4 (B) the aggregate amount authorized under sub-
 5 section (a) is not changed; and

6 (C) the Committee on Commerce, Science, and
 7 Transportation of the Senate and the Committee on
 8 Science, Space, and Technology of the House of Rep-
 9 resentatives are notified in advance of any such
 10 transfer.

11 (2) The Secretary may propose transfers to or from
 12 any line item listed in subsection (a) exceeding 10 percent
 13 of the amount authorized from such line item, but such pro-
 14 posed transfer may not be made unless—

15 (A) a full and complete explanation of any such
 16 proposed transfer and the reason therefor are trans-
 17 mitted in writing to the Speaker of the House of Rep-
 18 resentatives, the President of the Senate, and the ap-
 19 propriate authorizing committees of the House of
 20 Representatives and the Senate; and

21 (B) 30 days have passed following the trans-
 22 mission of such written explanation.

23 (c) NATIONAL TECHNICAL INFORMATION SERVICE FA-
 24 CILITIES STUDY.—As part of its modernization effort and
 25 before signing a new facility lease, the National Technical

1 *Information Service, in consultation with the General Serv-*
 2 *ices Administration, shall study and report to Congress on*
 3 *the feasibility of accomplishing all or part of its moderniza-*
 4 *tion by signing a long-term lease with an organization that*
 5 *agrees to supply a facility and supply and periodically up-*
 6 *grade modern equipment which permits the National Tech-*
 7 *nical Information Service to receive, store, and manipulate*
 8 *in electronic form, and print, electronically-created docu-*
 9 *ments and reports and to carry out the other functions as-*
 10 *signed to the National Technical Information Service.*

11 **SEC. 502. NATIONAL INSTITUTE OF STANDARDS AND TECH-**
 12 **NOLOGY.**

13 (a) *INTRAMURAL SCIENTIFIC AND TECHNICAL RE-*
 14 *SEARCH AND SERVICES.*—(1) *There are authorized to be ap-*
 15 *propriated to the Secretary, to carry out the intramural*
 16 *scientific and technical research and services activities of*
 17 *the Institute, \$240,988,000 for fiscal year 1994 and*
 18 *\$320,764,000 for fiscal year 1995.*

19 (2) *Of the amount authorized under paragraph (1)—*

20 (A) *\$1,000,000 for fiscal year 1994 and*
 21 *\$1,000,000 for fiscal year 1995 are authorized only*
 22 *for the evaluation of nonenergy-related inventions;*

23 (B) *\$9,000,000 for fiscal year 1994 and*
 24 *\$10,000,000 for fiscal year 1995 are authorized only*
 25 *for the technical competence fund; and*

1 (C) \$5,000,000 for fiscal year 1994 and
 2 \$5,000,000 for fiscal year 1995 are authorized only
 3 for the standards pilot project established under sec-
 4 tion 104(e) of the American Technology Preeminence
 5 Act of 1991 (Public Law 102-245; 106 Stat. 10).

6 (b) *FACILITIES*.—In addition to the amounts author-
 7 ized under subsection (a), there are authorized to the appro-
 8 priated to the Secretary \$105,000,000 for fiscal year 1993,
 9 \$62,000,000 for fiscal year 1994, and \$105,000,000 for fis-
 10 cal year 1995 for the renovation and upgrading of the Insti-
 11 tute's facilities. The Institute may enter into a contract for
 12 the design work for such purposes only if Federal Govern-
 13 ment payments under the contract are limited to amounts
 14 provided in advance in appropriations Acts.

15 (c) *EXTRAMURAL INDUSTRIAL TECHNOLOGY SERV-*
 16 *ICES*.—In addition to the amounts authorized under sub-
 17 sections (a) and (b), there are authorized to be appropriated
 18 to the Secretary, to carry out the extramural industrial
 19 technology services activities of the Institute—

20 (1) for the Manufacturing Extension Partner-
 21 ship, \$120,000,000 for fiscal year 1994 and
 22 \$220,000,000 for fiscal year 1995, of which—

23 (A) \$40,000,000 for fiscal year 1994 and
 24 \$60,000,000 for fiscal year 1995 are authorized

1 *only for the support of Regional Centers for the*
2 *Transfer of Manufacturing Technology;*

3 *(B) \$30,000,000 for fiscal year 1994 and*
4 *\$80,000,000 for fiscal year 1995 are authorized*
5 *only for the support of Manufacturing Outreach*
6 *Centers;*

7 *(C) \$30,000,000 for fiscal year 1994 and*
8 *\$50,000,000 for fiscal year 1995 are authorized*
9 *only for the State Technology Extension Pro-*
10 *gram; and*

11 *(D) \$20,000,000 for fiscal year 1994 and*
12 *\$30,000,000 for fiscal year 1995 are authorized*
13 *only for the Institute activities in support of the*
14 *Manufacturing Extension Partnership, including*
15 *support of the technology extension communica-*
16 *tions network provided for, and the associated*
17 *clearinghouse system developed, under section*
18 *304 of the Stevenson-Wydler Technology Innova-*
19 *tion Act of 1980 (as added by section 212 of this*
20 *Act);*

21 *(2) for the Advanced Technology Program,*
22 *\$200,000,000 for fiscal year 1994 and \$468,000,000*
23 *for fiscal year 1995, of which \$30,000,000 for fiscal*
24 *year 1994 and \$50,000,000 for fiscal year 1995 are*
25 *authorized only for support of the Advanced Manufac-*

1 *turing Technology Development Program established*
 2 *under section 303 of the Stevenson-Wydler Technology*
 3 *Innovation Act of 1980 (as added by section 212 of*
 4 *this Act); and*

5 *(3) for quality programs at the Institute,*
 6 *\$2,000,000 for each of the fiscal years 1994 and 1995.*

7 *(d) WIND ENGINEERING.—(1) There are authorized to*
 8 *be appropriated to the Institute for the purposes of section*
 9 *407 of this Act, \$1,000,000 for fiscal year 1994 and*
 10 *\$3,000,000 for fiscal year 1995.*

11 *(2) Of the amounts appropriated under paragraph (1),*
 12 *no less than 50 percent shall be used for cooperative agree-*
 13 *ments with the National Oceanic and Atmospheric Admin-*
 14 *istration, the National Science Foundation, and the Federal*
 15 *Aviation Administration, or other agencies, for wind engi-*
 16 *neering research, development of improved practices for*
 17 *structures, and the collection and dissemination of*
 18 *meteorological data needed for wind engineering.*

19 **SEC. 503. ADDITIONAL ACTIVITIES OF THE TECHNOLOGY**
 20 **ADMINISTRATION.**

21 *In addition to the amounts authorized under sections*
 22 *501 and 502, there are authorized to be appropriated to*
 23 *the Secretary—*

1 (1) for the establishment and management of a
2 technology training clearinghouse, \$2,000,000 for fis-
3 cal year 1994 and \$3,000,000 for fiscal year 1995;

4 (2) for the support of policy experiments relating
5 to intelligent manufacturing systems, \$10,000,000 for
6 fiscal year 1994; and

7 (3) for the purpose of carrying out the technology
8 financing pilot program under section 305,
9 \$2,000,000 in fiscal year 1994 to prepare the operat-
10 ing plan and promulgate regulations required under
11 subsection (c) of that section and \$50,000,000 for each
12 of fiscal years 1995 and 1996 to carry out the provi-
13 sions of that section.

14 Amounts appropriated under paragraph (3) shall remain
15 available for expenditure through September 30, 1996. Of
16 the amounts made available under paragraph (3) for a fis-
17 cal year, not more than \$5,000,000 or 10 percent, whichever
18 is greater, shall be available for administrative expenses.
19 The Secretary, through the Under Secretary and the Direc-
20 tor, may accept the transfer of funding appropriated to any
21 other agency for purposes similar or related to those of the
22 programs established and carried out under title III of the
23 Stevenson-Wydler Technology Innovation Act of 1980 (as
24 added by section 212 of this Act), or the programs estab-
25 lished and carried out under sections 25 and 26 of the Na-

1 tional Institute of Standards and Technology Act (15
 2 U.S.C. 278k and 278l), and to use those funds to implement
 3 such programs as provided in those statutory provisions.

4 **SEC. 504. NATIONAL SCIENCE FOUNDATION.**

5 In addition to such other sums as may be authorized
 6 by other provisions of law to be appropriated to the Director
 7 of the National Science Foundation, there are authorized
 8 to be appropriated to that Director, to carry out the provi-
 9 sions of section 221, \$50,000,000 for fiscal year 1994 and
 10 \$75,000,000 for fiscal year 1995.

11 **SEC. 505. AVAILABILITY OF APPROPRIATIONS.**

12 Appropriations made under the authority provided in
 13 this title shall remain available for obligation, for expendi-
 14 ture, or for obligation and expenditure for periods specified
 15 in the Acts making such appropriations.

16 **TITLE VI—INFORMATION TECH-**
 17 **NOLOGY APPLICATIONS RE-**
 18 **SEARCH PROGRAM**

19 **SEC. 601. SHORT TITLE.**

20 This title may be cited as the “Information Technology
 21 Applications Program Act of 1993”.

22 **SEC. 602. FINDINGS AND PURPOSE.**

23 (a) *FINDINGS.*—Congress finds and declares the follow-
 24 ing:

1 (1) *High-performance computing and high-speed*
2 *networks have proven to be powerful tools for improv-*
3 *ing America's national security, industrial competi-*
4 *tiveness, and research capabilities.*

5 (2) *Federal programs, like the High-Performance*
6 *Computing Program established by Congress in 1991,*
7 *have played a key role in maintaining United States*
8 *leadership in high-performance computing, especially*
9 *in the defense and research sectors.*

10 (3) *High-performance computing and high-speed*
11 *networking have the potential to revolutionize many*
12 *fields, including education, libraries, health care, and*
13 *manufacturing, if adequate resources are invested in*
14 *developing the technology needed to do so.*

15 (4) *The Federal Government should ensure that*
16 *the technology developed under research and develop-*
17 *ment programs like the High-Performance Computing*
18 *Program can be widely applied for the benefit of all*
19 *Americans, including Americans with disabilities .*

20 (5) *A coordinated, interagency program is need-*
21 *ed to identify and promote the development of appli-*
22 *cations of high-performance computing and high-*
23 *speed networking which will provide large economic*
24 *and social benefits to the Nation. These so-called "Na-*
25 *tional Challenges" should include tools for teaching,*

1 *digital libraries of electronic information, computer*
2 *systems to improve the delivery of health care, and*
3 *computer and networking technology to promote Unit-*
4 *ed States competitiveness. To the extent practicable,*
5 *these applications should be designed and operated in*
6 *a manner consistent with copyright law.*

7 *(6) The Office of Science and Technology Policy*
8 *is the appropriate office to coordinate such a pro-*
9 *gram.*

10 *(b) PURPOSE.—It is the purpose of this Act to help*
11 *ensure the widest possible application of high-performance*
12 *computing and high-speed networking. This requires that*
13 *the United States Government—*

14 *(1) expand Federal support for research and de-*
15 *velopment on applications of high-performance com-*
16 *puting and high-speed networks for—*

17 *(A) improving education at all levels, from*
18 *preschool to adult education, by developing new*
19 *educational technology;*

20 *(B) building digital libraries of electronic*
21 *information accessible over computer networks*
22 *like the National Research and Education Net-*
23 *work;*

24 *(C) improving the provision of health care*
25 *by furnishing health care providers and their pa-*

1 *tients with better, more accurate, and more time-*
 2 *ly information; and*

3 *(D) increasing the productivity of the Na-*
 4 *tion's workers, especially in the manufacturing*
 5 *sector; and*

6 *(2) improve coordination of Federal efforts to de-*
 7 *ploy these technologies in cooperation with the private*
 8 *sector as part of an advanced, national information*
 9 *infrastructure.*

10 ***SEC. 603. INFORMATION TECHNOLOGY APPLICATIONS RE-***
 11 ***SEARCH PROGRAM.***

12 *The High-Performance Computing Act of 1991 (15*
 13 *U.S.C. 5501 et seq.) is amended by adding at the end the*
 14 *following new title:*

15 ***“TITLE III—INFORMATION TECH-***
 16 ***NOLOGY APPLICATIONS RE-***
 17 ***SEARCH PROGRAM***

18 ***“SEC. 301. ESTABLISHMENT OF APPLICATIONS RESEARCH***
 19 ***PROGRAM.***

20 *“The Director, through the Federal Coordinating*
 21 *Council for Science, Engineering, and Technology, shall, in*
 22 *accordance with this title—*

23 *“(1) establish a coordinated interagency applica-*
 24 *tions research program to develop applications of*
 25 *computing and networking advances achieved under*

1 *the Program described in section 101, that are de-*
 2 *signed (A) to be accessible and usable by all persons*
 3 *in the United States, in the fields of education, librar-*
 4 *ies, health care, the provision of government informa-*
 5 *tion, and other appropriate fields; and (B) to ensure*
 6 *privacy, security, and respect for copyrights; and*

7 *“(2) develop a Plan for Computing and*
 8 *Networking Applications (hereafter in this title re-*
 9 *ferred to as the ‘Plan’) describing the goals and pro-*
 10 *posed activities of the applications research program*
 11 *established under paragraph (1), taking into consider-*
 12 *ation the recommendations of the advisory committee*
 13 *on high-performance computing and applications es-*
 14 *tablished under section 101(b).*

15 *The President shall designate the Federal agencies and de-*
 16 *partments which shall participate in the applications pro-*
 17 *gram established under paragraph (1).*

18 **“SEC. 302. PLAN FOR COMPUTING AND NETWORK APPLICA-**
 19 **TIONS.**

20 *“(a) REQUIREMENT.—The Plan shall contain rec-*
 21 *ommendations for a 5-year national effort and shall be sub-*
 22 *mitted to the Congress within 1 year after the date of enact-*
 23 *ment of this title. The Plan shall be resubmitted upon revi-*
 24 *sion at least once every 2 years thereafter.*

25 *“(b) CONTENTS.—The Plan shall—*

1 “(1) establish the goals and priorities for the
2 Program for the fiscal year in which the Plan (or re-
3 vised Plan) is submitted and the succeeding 4 fiscal
4 years;

5 “(2) set forth the role of each Federal agency and
6 department in implementing the Plan;

7 “(3) describe the levels of Federal funding for
8 each agency and department, and specific activities,
9 required to achieve the goals and priorities established
10 under paragraph (1);

11 (4) identify steps agencies will take in the appli-
12 cations research program to promote privacy, secu-
13 rity, and respect for copyrights in Federal networks
14 and computing applications; and

15 “(5) assign particular agencies primary respon-
16 sibility for developing particular National Challenges
17 of high-performance computing and high-speed net-
18 works.

19 “(c) ACCOMPANYING DOCUMENTS.—Accompanying the
20 Plan shall be—

21 “(1) a summary of the achievements of Federal
22 efforts during the preceding fiscal year to develop
23 technologies needed for deployment and full utiliza-
24 tion of an advanced information infrastructure;

1 “(2) an evaluation of the progress made toward
2 achieving the goals and objectives of the Plan;

3 “(3) a summary of problems encountered in im-
4 plementing the Plan; and

5 “(4) any recommendations regarding additional
6 action or legislation which may be required to assist
7 in achieving the purposes of this title.

8 “(d) AGENCIES AND DEPARTMENTS.—The Plan shall
9 address, where appropriate, the relevant programs and ac-
10 tivities of the following Federal agencies and departments:

11 “(1) The National Science Foundation.

12 “(2) The Department of Commerce, particularly
13 the National Institute of Standards and Technology,
14 the National Oceanic and Atmospheric Administra-
15 tion, and the National Telecommunications and In-
16 formation Administration.

17 “(3) The National Aeronautics and Space Ad-
18 ministration.

19 “(4) The Department of Defense, particularly the
20 Advanced Research Projects Agency.

21 “(5) The Department of Energy.

22 “(6) The Department of Health and Human
23 Services, particularly the National Institutes of
24 Health and the National Library of Medicine.

1 “(7) *The Department of the Interior, particu-*
2 *larly the United States Geological Survey.*

3 “(8) *The Department of Education.*

4 “(9) *The Department of Agriculture, particularly*
5 *the National Agricultural Library.*

6 “(10) *Such other agencies and departments as*
7 *the President or the Chairman of the Council consid-*
8 *ers appropriate.*

9 “(e) *LIBRARY OF CONGRESS.—In addition, the Plan*
10 *shall take into consideration the present and planned ac-*
11 *tivities of the Library of Congress, as deemed appropriate*
12 *by the Librarian of Congress.*

13 “(f) *COUNCIL.—The Council shall—*

14 “(1) *serve as lead entity responsible for develop-*
15 *ment of the Plan and interagency coordination of the*
16 *Program;*

17 “(2) *coordinate the high-performance computing*
18 *research and development activities of Federal agen-*
19 *cies and departments undertaken pursuant to the*
20 *Plan and report at least annually to the President,*
21 *through the Chairman of the Council, on any rec-*
22 *ommended changes in agency or departmental roles*
23 *that are needed to better implement the Plan;*

24 “(3) *review, prior to the President’s submission*
25 *to the Congress of the annual budget estimate, each*

1 *agency and departmental budget estimate in the con-*
 2 *text of the Plan and make the results of that review*
 3 *available to the appropriate elements of the Executive*
 4 *Office of the President, particularly the Office of*
 5 *Management and Budget; and*

6 *“(4) consult and ensure communication between*
 7 *Federal agencies and research, educational, and in-*
 8 *dustry groups and State agencies conducting research*
 9 *and development on and using high-performance com-*
 10 *puting.*

11 **“SEC. 303. DEFINITIONS.**

12 *“As used in this title, the term—*

13 *“(1) ‘broadband’ means a transmission rate for*
 14 *digital information on a communications network*
 15 *which exceeds the maximum rate possible for trans-*
 16 *mission of digital information on normal copper tele-*
 17 *phone wires;*

18 *“(2) ‘information infrastructure’ means a net-*
 19 *work of communications systems and computer sys-*
 20 *tems designed to exchange information among all citi-*
 21 *zens and residents of the United States;*

22 *“(3) ‘Internet’ means the network of*
 23 *interoperable and interconnected packet-switched data*
 24 *networks, whether provided by the public or private*
 25 *sector; and*

1 “(4) ‘National Challenge’ means an application
2 of high-performance computing and high-speed
3 networking that will provide large economic and
4 social benefits to a broad segment of the Nation’s
5 populace.”.

6 **SEC. 604. NETWORK ACCESS.**

7 (a) *CONNECTIONS PROGRAM.*—In accordance with the
8 Plan developed under section 301 of the High-Performance
9 Computing Act of 1991, as added by section 603 of this
10 Act, the National Science Foundation and Department of
11 Commerce shall—

12 (1) *foster the creation of local networks in com-*
13 *munities which will connect institutions of higher*
14 *education, elementary and secondary schools, librar-*
15 *ies, and State and local governments to each other;*
16 *and*

17 (2) *provide for connection of such local networks*
18 *to the Internet.*

19 *Such program shall include funding for the acquisition of*
20 *required hardware and for the establishment of broadband*
21 *connections to the Internet. In making awards under this*
22 *subsection, the National Science Foundation and, as appro-*
23 *priate, the Department of Commerce shall ensure that not*
24 *more than 75 percent of the cost of the project for which*
25 *the award is made is provided under this section.*

1 (b) *TRAINING.*—*The Plan shall include programs ad-*
2 *ministered by the National Science Foundation, Depart-*
3 *ment of Commerce, and other appropriate agencies and de-*
4 *partments to train teachers, students, librarians, and State*
5 *and local government personnel in the use of computer net-*
6 *works and the Internet. Training programs for librarians*
7 *shall be designed to provide skills and training materials*
8 *needed by librarians to instruct the public in the use of*
9 *hardware and software for accessing and using computer*
10 *networks and the Internet.*

11 (c) *REPORT.*—*The Director of the Office of Science and*
12 *Technology Policy shall, within 1 year after the date of en-*
13 *actment of this Act, submit a report to Congress which shall*
14 *include—*

15 (1) *findings of an examination of the extent to*
16 *which the education and library communities and*
17 *State and local government have access to the*
18 *Internet, including the numbers and the geographic*
19 *distribution, by type, of institutions having access;*

20 (2) *a statement of the extent to which broadband*
21 *connections to the Internet exist for the education and*
22 *library communities and State and local govern-*
23 *ments, including the numbers and the geographic dis-*
24 *tribution, by type, of institutions having access;*

1 (3) *an assessment of the factors limiting access*
 2 *by schools, libraries, and State and local governments*
 3 *to the Internet and an estimate of the cost of provid-*
 4 *ing universal broadband access for those institutions*
 5 *to the Internet; and*

6 (4) *recommendations for collaborative programs*
 7 *among Federal, State, and local governments and the*
 8 *private sector to expand connectivity to the Internet*
 9 *for educational institutions, libraries, and State and*
 10 *local governments.*

11 (d) *AUTHORIZATION OF APPROPRIATIONS.—There are*
 12 *authorized to be appropriated to the National Science*
 13 *Foundation for the purposes of this section, \$10,000,000 for*
 14 *fiscal year 1994 and \$25,000,000 for fiscal year 1995.*

15 **SEC. 605. APPLICATIONS FOR EDUCATION.**

16 (a) *RESPONSIBILITIES OF NATIONAL SCIENCE FOUN-*
 17 *DATION AND OTHER AGENCIES.—In accordance with the*
 18 *Plan developed under section 301 of the High-Performance*
 19 *Computing Act of 1991, as added by section 603 of this*
 20 *Act, the National Science Foundation, the Department of*
 21 *Commerce, and other appropriate agencies shall provide for*
 22 *the development of advanced computing and networking*
 23 *technology for use in education at all levels. Such applica-*
 24 *tions shall include but not be limited to the following:*

1 (1) *Pilot projects, including support for acquisi-*
2 *tion of required computer hardware and software,*
3 *that demonstrate the educational value of the Internet*
4 *in providing for advances in distance learning and*
5 *electronic classrooms, facilitating nationwide commu-*
6 *nication among educators and students, access to*
7 *databases of information in digital format, and access*
8 *to innovative curricular materials.*

9 (2) *Development, testing, and evaluation of com-*
10 *puter systems, computer software, and computer net-*
11 *works for—*

12 (A) *teacher training; and*

13 (B) *informal education outside of school, in-*
14 *cluding workforce training in mathematics,*
15 *science, and technology and in specific job-relat-*
16 *ed skills.*

17 (3) *Development, testing, and evaluation of ad-*
18 *vanced educational software and of network-based in-*
19 *formation resources, including software and informa-*
20 *tion resources to assist students with disabilities.*

21 (b) *COOPERATION.—In carrying out activities under*
22 *subsection (a), the National Science Foundation, the De-*
23 *partment of Commerce, and other appropriate agencies*
24 *shall work with the computer and communications indus-*
25 *try, authors and publishers of educational materials, State*

1 *education departments, local school districts, and the De-*
 2 *partment of Education, as appropriate.*

3 (c) *NATIONAL AERONAUTICS AND SPACE ADMINISTRA-*
 4 *TION PROJECTS.*—*The Administrator of the National Aero-*
 5 *nautics and Space Administration (hereafter in this section*
 6 *referred to as the “Administrator”) shall establish a Com-*
 7 *puter Technologies for K–12 Education Project (hereafter*
 8 *in this section referred to as the “Project”) to test and dem-*
 9 *onstrate educational applications of advanced computer*
 10 *technologies in K–12 public school systems. The Project*
 11 *shall award, on a competitive basis, grants to plan, deploy,*
 12 *manage, and operate advanced educational applications of*
 13 *computer technologies in K–12 public school systems in the*
 14 *United States in response to proposals requested by the Ad-*
 15 *ministrator. Such proposals, at a minimum, shall provide*
 16 *for—*

17 (1) *placement and use of advanced computer*
 18 *hardware, software, and networking capabilities to*
 19 *benefit as broad a segment of the relevant public*
 20 *school system as possible;*

21 (2) *use of computer technology to provide audio-*
 22 *visual and interactive educational experiences for stu-*
 23 *dents and teachers;*

1 (3) *incorporation of computer technology in as*
2 *many phases of the school system curricula as prac-*
3 *ticable and across all grade levels;*

4 (4) *connection of the school system to national,*
5 *regional, and local computer networks which would*
6 *enhance the educational capability and effectiveness of*
7 *the system;*

8 (5) *access to national, regional, and local librar-*
9 *ies and databases which would improve the edu-*
10 *cational process and enhance the educational experi-*
11 *ence within the school system; and*

12 (6) *matching non-Federal funds committed to*
13 *support the proposal amounting to not less than 30*
14 *percent of the Federal grant from the Project.*

15 (d) *AUTHORIZATION OF APPROPRIATIONS.—(1) There*
16 *are authorized to be appropriated to the National Science*
17 *Foundation for the purposes of subsections (a) and (b)*
18 *\$12,000,000 for fiscal year 1993, \$24,000,000 for fiscal year*
19 *1994, and \$40,000,000 for fiscal year 1995.*

20 (2) *There are authorized to be appropriated to the Na-*
21 *tional Aeronautics and Space Administration \$8,000,000*
22 *for each of the fiscal years 1994 and 1995, to carry out*
23 *the provisions of subsection (c). No funds shall be awarded*
24 *under the Project other than through the competitive process*
25 *established by the Administrator pursuant to this section.*

1 **SEC. 606. APPLICATIONS FOR MANUFACTURING.**

2 (a) *ADVANCED MANUFACTURING SYSTEMS AND*
3 *NETWORKING PROJECTS.*—*In accordance with the Plan de-*
4 *veloped under section 301 of the High-Performance Com-*
5 *puting Act of 1991, as added by section 603 of this Act,*
6 *the Institute shall, as provided under section 303 of the Ste-*
7 *venson-Wylder Technology Innovation Act (as added by sec-*
8 *tion 212 of this Act), establish an Advanced Manufacturing*
9 *Program, including advanced manufacturing systems and*
10 *networking projects. Activities under the Advanced Manu-*
11 *facturing Program shall, as appropriate, be coordinated*
12 *with the activities of the Advanced Research Projects Agen-*
13 *cy, the National Science Foundation, other Federal agen-*
14 *cies, and the States to develop, refine, test, and transfer ad-*
15 *vanced computer-integrated electronically-networked manu-*
16 *facturing technologies and associated applications.*

17 (b) *SUPPORT FROM OTHER FEDERAL DEPARTMENTS*
18 *AND AGENCIES.*—*The Director may request and accept*
19 *funds, facilities, equipment, or personnel from other Federal*
20 *departments and agencies in order to carry out responsibil-*
21 *ities under this section.*

22 (c) *AUTHORIZATION OF APPROPRIATIONS.*—*Of the*
23 *amounts authorized under section 502(a) for the Institute's*
24 *intramural scientific and technical research and services,*
25 *\$24,000,000 for fiscal year 1994 and \$40,000,000 for fiscal*

1 year 1995 are authorized only for activities under this sec-
2 tion.

3 **SEC. 607. APPLICATIONS FOR HEALTH CARE.**

4 (a) *DEVELOPMENT OF TECHNOLOGIES BY THE DE-*
5 *PARTMENT OF HEALTH AND HUMAN SERVICES.*—In ac-
6 cordance with the Plan developed under section 301 of the
7 High Performance Computing Act of 1991, as added by sec-
8 tion 603 of this Act, the Department of Health and Human
9 Services, through the National Institutes of Health, the Na-
10 tional Library of Medicine, and the Centers for Disease
11 Control and Prevention, in cooperation with the National
12 Science Foundation and other appropriate agencies, shall
13 develop and support the development of interoperable tech-
14 nologies for applications of high-performance computing
15 and high-speed networking in the health care sector. In such
16 development, emphasis shall be placed initially on applica-
17 tions that can produce significant savings in national
18 health care costs. Such technologies shall, when feasible,
19 build on existing Federal programs for developing informa-
20 tion technology applications in the health care sector. Such
21 applications shall include but not be limited to the follow-
22 ing:

23 (1) *Testbed networks for linking hospitals, clin-*
24 *ics, doctor's offices, medical schools, medical libraries,*
25 *and universities to enable health care providers and*

1 *researchers to share medical data and imagery, in-*
2 *cluding testbed projects involving rural providers and*
3 *others.*

4 (2) *Software and visualization technology for*
5 *visualizing the human anatomy and analyzing im-*
6 *agery from X-rays, CAT scans, PET scans, and other*
7 *diagnostic tools.*

8 (3) *Virtual reality technology for simulating op-*
9 *erations and other medical procedures.*

10 (4) *Collaborative technology to allow several*
11 *health care providers in remote locations to provide*
12 *real-time treatment to patients.*

13 (5) *Database technology to provide health care*
14 *providers with access to relevant medical information*
15 *and literature.*

16 (6) *Database technology for storing, accessing,*
17 *and transmitting patients' medical records while pro-*
18 *tecting the accuracy and privacy of those records.*

19 (7) *Development, testing, and evaluation of*
20 *database and network technologies for the storage of*
21 *consumer-oriented, interactive, multimedia materials*
22 *for health promotion, and for the distribution of such*
23 *materials to public access points, such as community*
24 *health and human service agencies, schools, and pub-*
25 *lic libraries.*

1 (b) *AUTHORIZATION OF APPROPRIATIONS.*—There are
2 authorized to be appropriated to the National Library of
3 Medicine for the purposes of this section, \$9,000,000 for fis-
4 cal year 1993, \$30,000,000 for fiscal year 1994, and
5 \$50,000,000 for fiscal year 1995.

6 **SEC. 608. APPLICATIONS FOR LIBRARIES.**

7 (a) *DIGITAL LIBRARIES.*—In accordance with the
8 Plan developed under section 301 of the High-Performance
9 Computing Act of 1991, as added by section 603 of this
10 Act, the National Science Foundation, the National Aero-
11 nautics and Space Administration, the Advanced Research
12 Projects Agency, and other appropriate agencies shall de-
13 velop technologies for “digital libraries” of electronic infor-
14 mation. Development of digital libraries shall include the
15 following:

16 (1) *Development of advanced data storage sys-*
17 *tems capable of storing hundreds of trillions of bits of*
18 *data and giving thousands of users nearly instantana-*
19 *neous access to that information.*

20 (2) *Development of high-speed, highly accurate*
21 *systems for converting printed text, page images,*
22 *graphics, and photographic images into electronic*
23 *form.*

1 (3) *Development of database software capable of*
 2 *quickly searching, filtering, and summarizing large*
 3 *volumes of text, imagery, data, and sound.*

4 (4) *Encouragement of development and adoption*
 5 *of common standards and, where appropriate, com-*
 6 *mon formats, for electronic data.*

7 (5) *Development of computer technology to cat-*
 8 *egorize and organize electronic information in a vari-*
 9 *ety of formats.*

10 (6) *Training of database users and librarians in*
 11 *the use of and development of electronic databases.*

12 (7) *Development of technology for simplifying*
 13 *the utilization of networked databases distributed*
 14 *around the Nation and around the world.*

15 (8) *Development of visualization technology for*
 16 *quickly browsing large volumes of imagery.*

17 (b) *DEVELOPMENT OF PROTOTYPES.*—*The National*
 18 *Science Foundation, working with the supercomputer cen-*
 19 *ters it supports, shall develop prototype digital libraries of*
 20 *scientific data available over the Internet.*

21 (c) *ELECTRONIC LIBRARIES IN THE STATES.*—*The*
 22 *National Science Foundation, in consultation with the De-*
 23 *partment of Education, the Department of Commerce, the*
 24 *Advanced Research Projects Agency, and the Library of*
 25 *Congress, is authorized to initiate a competitive, merit-*

1 *based program to support the efforts of States and, as ap-*
 2 *propriate, libraries to develop electronic libraries. These*
 3 *electronic libraries shall provide delivery of and access to*
 4 *a variety of databases, computer programs and interactive*
 5 *multimedia presentations, including educational materials,*
 6 *research information, statistics and reports developed by*
 7 *Federal, State, and local governments, and other informa-*
 8 *tion and informational services which can be carried over*
 9 *the Internet.*

10 (d) *DEVELOPMENT OF DATABASES OF REMOTE-SENS-*
 11 *ING IMAGES.*—*The National Aeronautics and Space Ad-*
 12 *ministration shall develop databases of software and re-*
 13 *mote-sensing images to be made available over computer*
 14 *networks like the Internet.*

15 (e) *AUTHORIZATION OF APPROPRIATIONS.*—(1) *There*
 16 *are authorized to be appropriated to the National Science*
 17 *Foundation for the purposes of this section, \$10,000,000 for*
 18 *fiscal year 1993, \$30,000,000 for fiscal year 1994, and*
 19 *\$55,000,000 for fiscal year 1995.*

20 (2) *There are authorized to be appropriated to the Na-*
 21 *tional Aeronautics and Space Administration for the pur-*
 22 *poses of this section, \$10,000,000 for fiscal year 1993,*
 23 *\$20,000,000 for fiscal year 1994, and \$30,000,000 for fiscal*
 24 *year 1995.*

1 **SEC. 609. APPLICATIONS FOR GOVERNMENT INFORMATION.**

2 (a) *IN GENERAL.*—In accordance with the Plan devel-
3 oped under section 301 of the High-Performance Computing
4 Act of 1991, as added by section 603 of this Act, the Sec-
5 retary and, as appropriate, other Federal officials shall
6 identify projects to develop and apply high-performance
7 computing and high-speed networking technologies to pro-
8 vide improved public access to information generated by
9 Federal, State, and local governments.

10 (b) *PROJECTS.*—In accordance with subsection (a),
11 projects shall be undertaken which—

12 (1) connect depository libraries and other sources
13 of government information to the Internet to enable—

14 (A) access to Federal Government informa-
15 tion and databases in electronic formats;

16 (B) access to State or local government in-
17 formation;

18 (C) access to related resources which en-
19 hance the use of government information; and

20 (D) linkages with other libraries and insti-
21 tutions to enhance use of government informa-
22 tion; and

23 (2) demonstrate, test, and evaluate technologies
24 to increase access to and facilitate effective use of gov-
25 ernment information and databases for support of re-

1 *search and education, economic development, and an*
2 *informed citizenry.*

3 (c) *FEDERAL INFORMATION LOCATOR.*—*In accordance*
4 *with subsection (a), an information locator system shall be*
5 *established which is accessible by the public via the Internet*
6 *and which provides citations to Federal information and*
7 *guidance on how to obtain such information.*

8 (d) *EARTH SCIENCES INFORMATION.*—*In accordance*
9 *with the Plan developed under section 301 of the High-Per-*
10 *formance Computing Act of 1991, as added by section 603*
11 *of this Act, the National Oceanic and Atmospheric Admin-*
12 *istration and other appropriate agencies shall provide for*
13 *the development and application of high-performance com-*
14 *puting and high-speed networking technology for use in en-*
15 *vironmental monitoring, prediction, and assessment, in-*
16 *cluding making environmental data and information more*
17 *readily accessible. Such applications shall include but not*
18 *be limited to the following:*

19 (1) *Development of advanced data acquisition*
20 *systems for in situ and remotely sensed environmental*
21 *data that are capable of making these data available*
22 *to thousands of users.*

23 (2) *Development of advanced information sys-*
24 *tems to process these environmental data, including*
25 *necessary quality control and interpretation using the*

1 *most current scientific knowledge, so that the result-*
 2 *ing environmental information is reliable, useful, and*
 3 *distributed widely over computer networks such as the*
 4 *National Research and Education Network in a time-*
 5 *ly manner.*

6 *(3) Development of advanced information sys-*
 7 *tems to archive and disseminate this environmental*
 8 *data and information so that it can be readily used*
 9 *for environmental policymaking, research, and oper-*
 10 *ational purposes.*

11 *(e) AUTHORIZATION OF APPROPRIATIONS.—There are*
 12 *authorized to be appropriated to the Secretary for the pur-*
 13 *poses of this section, \$14,000,000 for fiscal year 1994 and*
 14 *\$36,000,000 for fiscal year 1995.*

15 **SEC. 610. HIGH-PERFORMANCE COMPUTING AND APPLICA-**
 16 **TIONS ADVISORY COMMITTEE.**

17 *Section 101(b) of the High-Performance Computing*
 18 *Act of 1991 (15 U.S.C. 5511(b)) is amended to read as*
 19 *follows:*

20 *“(b) HIGH-PERFORMANCE COMPUTING AND APPLICA-*
 21 *TIONS ADVISORY COMMITTEE.—The Director shall establish*
 22 *an advisory committee on high-performance computing and*
 23 *applications consisting of non-Federal members, including*
 24 *representatives of the research, elementary and secondary*
 25 *education, higher education, and library communities,*

1 *consumer and public interest groups, network providers,*
2 *and the computer, telecommunications, and information*
3 *and publishing industries, who are specially qualified to*
4 *provide the Director with advice and information on high-*
5 *performance computing and on applications of computing*
6 *and networking. The recommendations of the advisory com-*
7 *mittee shall be considered in reviewing and revising the*
8 *Program, and the Plan required by section 301(2). The*
9 *advisory committee shall provide the Director with an*
10 *independent assessment of—*

11 “(1) *progress in implementing the Program and*
12 *the Plan;*

13 “(2) *the need to revise the Program and the*
14 *Plan;*

15 “(3) *the balance between the components of the*
16 *activities undertaken pursuant to this Act;*

17 “(4) *whether the research, development, and dem-*
18 *onstration projects undertaken pursuant to this Act*
19 *are helping to maintain United States leadership in*
20 *computing and networking technologies and in the*
21 *application of those technologies;*

22 “(5) *whether the applications developed under*
23 *title III are successfully addressing the needs of the*
24 *targeted populations, including assessment of the*
25 *number of users served by those applications; and*

1 “(6) other issues identified by the Director.”.

2 **SEC. 611. NATIONAL RESEARCH AND EDUCATION NETWORK**

3 **AMENDMENTS.**

4 Section 102 of the High-Performance Computing Act
5 of 1991 (15 U.S.C. 5512) is amended to read as follows:

6 **“SEC. 102. NATIONAL RESEARCH AND EDUCATION NET-**
7 **WORK PROGRAM.**

8 “(a) *ESTABLISHMENT.*—As part of the Program de-
9 scribed in section 101, the National Science Foundation,
10 the Department of Defense, the Department of Energy, the
11 Department of Commerce, the National Aeronautics and
12 Space Administration, and other agencies participating in
13 the Program shall support the establishment of the National
14 Research and Education Network Program. The Network
15 Program shall consist of the following components:

16 “(1) Research and development of broadband
17 networking software and hardware.

18 “(2) Experimental test bed networks for—

19 “(A) developing and demonstrating ad-
20 vanced networking technologies resulting from
21 the activities described in paragraph (1); and

22 “(B) providing connections for purposes
23 consistent with this Act which require levels of
24 network capabilities not available from commer-
25 cial networks operated by the private sector.

1 “(3) *Provision of support directly to researchers,*
2 *educators, and students to obtain access to and use of*
3 *the Internet to allow for communication with other*
4 *individuals in the research and education commu-*
5 *nities and to allow for access to high-performance*
6 *computing systems, electronic information resources,*
7 *other research facilities, and libraries.*

8 “(b) *TEST BED NETWORK CHARACTERISTICS.—The*
9 *test bed networks shall—*

10 “(1) *be developed and deployed in coordination*
11 *with the computer, telecommunications, and informa-*
12 *tion industries;*

13 “(2) *be designed, developed, and operated in col-*
14 *laboration with potential users in government, indus-*
15 *try, and research institutions and educational insti-*
16 *tutions;*

17 “(3) *be designed, developed, and operated in a*
18 *manner which fosters and maintains competition and*
19 *private sector investment in high-speed data*
20 *networking within the telecommunications industry;*

21 “(4) *be designed and operated in a manner*
22 *which promotes and encourages research and develop-*
23 *ment leading to the creation of commercial data*
24 *transmission standards, enabling the establishment of*
25 *privately developed high-speed commercial networks;*

1 “(5) support enough sites, users, and applica-
2 tions to provide a realistic test of new networking
3 technologies;

4 “(6) be designed and operated so as to enable the
5 application of laws that provide network and infor-
6 mation resources security, including those that protect
7 copyright and other intellectual property rights, and
8 those that control access to databases and protect na-
9 tional security;

10 “(7) have accounting mechanisms which allow
11 users or groups of users to be charged for their usage
12 of copyrighted materials available over the test bed
13 networks and, where appropriate and technically fea-
14 sible, for their usage of the test bed networks;

15 “(8) be connected to and interoperable with Fed-
16 eral and non-Federal computer networks, to the extent
17 appropriate, in a way that allows autonomy for each
18 component network; and

19 “(9) be developed by purchasing standard com-
20 mercial transmission and network services from ven-
21 dors whenever feasible, and by contracting for cus-
22 tomized services when not feasible, in order to mini-
23 mize Federal investment in network hardware.

24 “(c) NETWORK ACCESS.—The Federal agencies and de-
25 partments participating in activities under this section

1 *shall develop a plan with specific goals for implementing*
 2 *the requirements of subsection (a)(3), including provision*
 3 *for financial assistance to educational institutions, public*
 4 *libraries, and other appropriate entities. This plan shall be*
 5 *submitted to the Congress not later than one year after the*
 6 *date of enactment of the Information Technology Applica-*
 7 *tions Program Act of 1993.*

8 “(d) *RESTRICTION ON USE OF TEST BED NET-*
 9 *WORKS.—(1) The test bed networks shall not be used to pro-*
 10 *vide commercial network services that are not related to ex-*
 11 *perimental activity conducted under this section and that*
 12 *could otherwise be provided satisfactorily by using commer-*
 13 *cially available network services.*

14 “(2) *This subsection shall take effect 18 months after*
 15 *the date of enactment of the Information Technology Appli-*
 16 *cations Program Act of 1993.*

17 “(e) *ADVANCED RESEARCH PROJECTS AGENCY RE-*
 18 *SPONSIBILITY.—As part of the Program, the Department of*
 19 *Defense, through the Advanced Research Projects Agency,*
 20 *shall support research and development of advanced fiber*
 21 *optics technology, switches, and protocols needed to develop*
 22 *the Network Program.*

23 “(f) *INFORMATION SERVICES.—The Director shall as-*
 24 *sist the President in coordinating the activities of appro-*
 25 *priate agencies and departments to promote the develop-*

1 *ment of information services that could be provided over*
 2 *the Internet consistent with the purposes of this Act. These*
 3 *services may include the provision of directories of the users*
 4 *and services on computer networks, databases of unclassi-*
 5 *fied Federal scientific data, training of users of databases*
 6 *and computer networks, and technology to support com-*
 7 *puter-based collaboration that allows researchers and edu-*
 8 *cators around the Nation to share information and instru-*
 9 *mentation.*

10 “(g) *USE OF GRANT FUNDS.*—All Federal agencies
 11 and departments are authorized to allow recipients of Fed-
 12 eral research grants to use grant moneys to pay for com-
 13 puter networking expenses.”.

14 **SEC. 612. CONFORMING AMENDMENTS.**

15 *The High-Performance Computing Act of 1991 (15*
 16 *U.S.C. 5501 et seq.) is amended—*

17 (1) *in section 3(1), by amending subparagraph*
 18 (A) *to read as follows:*

19 “(A) *accelerate the creation of a universally*
 20 *accessible broadband telecommunications network*
 21 *for the Nation;”;*

22 (2) *in section 4(4), by inserting immediately be-*
 23 *fore the semicolon the following: “, which consists of*
 24 *that portion of the Internet which receives direct Fed-*
 25 *eral subsidy”;* and

1 (3) in section 101(a)(2), by striking “and” at the
 2 end of subparagraph (H); by striking the period at
 3 the end of subparagraph (I) and inserting in lieu
 4 thereof “; and”; and by adding at the end the follow-
 5 ing new subparagraph:

6 “(J) not provide for the building, ownership, or
 7 operation of data communications networks by the
 8 Federal Government, or any State or local govern-
 9 ment, or any agency or instrumentality thereof, un-
 10 less such networks are either (i) test bed networks or
 11 (ii) networks operated for government mission pur-
 12 poses, including military purposes.”.

S 4 RS—2

S 4 RS—3

S 4 RS—4

S 4 RS—5

S 4 RS—6

S 4 RS—7

S 4 RS—8

S 4 RS—9

S 4 RS—10

S 4 RS—11

S 4 RS—12

S 4 RS—13

S 4 RS—14